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The Economic Record

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PRINCIPLES OF MONETARY POLICY[1]

In the task of preserving balance in the economy the main weight should be borne by fiscal policy. But there are serious difficulties in making adjustments in fiscal policy in the course of the year other than at budget time. Monetary policy is therefore an important auxiliary especially for month to month adjustments.

In considering the scope for monetary policy and the choice of measures it is helpful to study the sources of funds available to persons and to firms for expenditure whether on consumption or on investment. If neither persons nor firms hold any liquid assets nor can borrow from any other source than certain banks, then the cost and availability of such bank credit must be the way in which monetary policy operates. Such a policy can then consist of control of bank advances.

But when the public hold government securities that can be readily turned into cash this provides another possible source of funds for expenditure. So does the opportunity of raising fresh capital or borrowing on fixed interest terms open to many firms and especially to those companies of which the shares are already quoted on a stock exchange. Trade credit and other forms of inter-company borrowing enable the surplus funds of one company to be used to finance expenditure by another. Financial intermediaries such as insurance companies, pension funds, trustee companies, pastoral finance companies, building societies, hire-purchase finance companies and investment trusts, all contribute to the finance of expenditure by persons and by firms. In an economy in which such intermediaries play a significant part, it is no longer true that monetary policy simply consists of control over bank advances. In such an economy there is a wide range of choice of measures open to those responsible for policy. The constitution or the legislature may narrow the range by denying to the executive agents, the central bank and the Treasury, powers to intervene in certain ways, e.g. control over building societies by the Central African Federation or over hire-purchase finance companies by the Australian Commonwealth Government. But let us ignore such limitations for the present and ask whether any criteria can be suggested to guide the choice between different measures.

First, we must be clear on the proper objectives for monetary policy. These I suggest should be the regulation of the *flow* of spending

[1] This is a lecture given to the Conference of the New Zealand Association of Economists in Wellington in February 1961.

on investment and on consumption. In order to regulate the flow it will be necessary to operate on certain *stocks,* such as the stock of bank deposits, and to vary certain prices such as the rate of interest on bank loans. But such operations must be regarded as means, not as ends in themselves. There is no particular volume of bank deposits, not even any ratio of bank deposits to net national income, nor any one interest rate structure which can be an objective of policy; for according to circumstances these must be varied to achieve a quickening or a slowing down of the flows of spending. There is no fixed arithmetical relationship between an increase in the volume of bank deposits and the consequential increase in the flow of spending. So the authorities cannot afford to lose sight of the flows and concentrate attention instead on the stocks.

In 1957 the Radcliffe Committee were surveying the British monetary system at a time when bank deposits had been falling steadily for 10 years; as a proportion of net national money income they fell from 64 per cent in 1947 to 35 per cent in 1957; the general impression was that monetary policy had failed in this period up to mid 1957 to check inflation. It is hardly surprising that they rejected control of bank deposits as the lodestar of monetary policy and sought another in the concept of "the liquidity of the economy"; "It is the liquidity of the economy rather than the supply of money that the authorities should seek to affect by their use of monetary measures."[2] Yet this has aroused a storm of protest both from eminent academic economists such as Sir Dennis Robertson, Mr. Harrod and Professor Paish, and from those close to central banking in practice such as Mr. Roosa and Mr. Katz of the Federal Reserve System. Thus Professor Paish wrote "It is difficult to understand the Committee's determination to discuss monetary problems in terms of overall liquidity which is not measurable instead of in terms of the quantity of money (or rather the money/national income ratio) which is".[3]

Now the liquidity of the economy is most important; there are many ways in which an increase or decrease of liquidity can cause inflation or deflation without any change in the volume of bank deposits. It must be a concern of the authorities. But analytically it is troublesome, not only because it is not measurable, nor even easy to define, but because it is neither an objective nor a tool of policy but something in between. If the objective is to reduce the rate of spending on investment and on consumption, the tool or means employed may be a reduction in the volume of bank reserves. This works through a reduction in the liquidity of the economy. So does a rise in interest rates. But the state of the liquidity of the economy is not an objective of policy in itself, nor is it a magnitude like the volume of bank deposits on which the authorities can operate. In order to bring out the significance of the concept of liquidity it is necessary to carry the analysis further and to discuss in some detail the many different flows of spending

[2] Cmnd. 827 of 1959 para. 10.
[3] *The Banker,* October 1959.

which are affected by monetary policy. If attention is concentrated on the objective in this way the relationship between liquidity and money supply can be seen in perspective; it can be shown, as Roosa puts it, that "these are mutually reinforcing not mutually exclusive zones for public policy".[4]

Monetary policy operates by making fairly frequent small adjustments. In Britain in 1960 for instance bank rate was moved four times, up twice and down twice. It is not a suitable means, therefore, of pursuing long-term or medium-term objectives such as the encouragement of the live theatre or the fishing industry. The modern state is amply supplied with fiscal devices for such purposes. Such support should be planned on a long-term basis, though the amount to be given may vary from year to year, if desired, in order to stabilise the income of theatre managements or fishermen. This will not be achieved by discrimination in monetary policy, such as the provision that, when bank lending rates rise in general, special reduced rates be made available to these classes; for the benefit they gain will be temporary and unrelated to changes in their income. It may be received when they are enjoying a bumper year. (Such a scheme can also be criticised as the provision of a hidden subsidy of uncertain amount.) Thus it is not inconsistent, as is sometimes supposed, for the authorities both to be paying a subsidy to the fishing industry or the live theatre, and to be responsible for the high level of interest rates payable on loans from the banks by these and all other borrowers.

Precisely because the objective of monetary policy is the limited one of controlling the pace of the general flow of spending, monetary policy should be indiscriminate.[5] It is a poor way of trying to discriminate between social objectives for which other far superior tools are available; and the attempt to do so may seriously weaken its effectiveness in achieving its important primary aim.

There is however another sense in which monetary policy may be said to be discriminatory—a tight money policy checks investment more than consumption. This is quite distinct. It is not a question of conscious discrimination by the authorities in favour of certain areas or activities, but rather that the decision to exercise restraint on the economy by the use of monetary policy instead of fiscal policy necessarily involves discrimination against investment. It is probable too, as Professor Kahn suggested in his evidence to the Radcliffe Committee, that there is a natural political bias in favour of using fiscal policy to promote expansion in the economy, by means of a popular budget of tax reductions and increased pensions, and monetary policy to exercise restraint. This has the dangerous effect in the long run of encouraging consumption at the expense of investment. One conclusion, that can be drawn, is that as little use as possible should be made of monetary policy, and that reliance be placed on fiscal policy and

[5] Cf. Maxwell Gaskin, "Credit Policy and the Regional Problem", *The Bankers Magazine*, September 1960.

[4] *Lloyds Bank Review*, October 1959.

various forms of rationing and direct controls such as over licences to build and to extend factories. It is possible, however, to recognise that part of the burden of adjustment imposed by the use of monetary policy will fall on investment, and yet to argue that fiscal policy should be, and can be, so designed as to allow for this, and to secure a sufficiently high level of investment in the long run. This might be difficult if indeed the whole burden of adjustment caused by a tight money policy fell upon the rate of investment in manufacturing industry; this is sometimes implied by those who distrust monetary policy because it discriminates against investment and therefore slows up the rate of growth of national income. But a more detailed study of the flows of spending affected by monetary policy shows that this is not so.

Large companies in industries with big units of production such as steelworks, chemical plants and oil refineries have to plan their investment programmes about 5 years ahead. Such programmes are little affected by temporary credit stringency. They need not be because such "giant companies",[6] as the chairman of Vickers explained to the Radcliffe Committee, "can count on getting the money". They have sufficient liquid funds to time the raising of fresh capital to suit themselves and can always get funds by a rights issue of ordinary shares to shareholders.

Giant companies in industries with smaller units of production such as Unilever or Metal Box are equally free of worry over supplies of funds; although they may trim certain investment programmes when monetary policy is tightened because this is expected to reduce the rate of ordering of some of their customers.

The investment programmes of many medium-sized and small firms are also unaffected directly by monetary policy. The effective limits on the rate of expansion are often not financial but technical and managerial. In many cases the whole programme is planned on the assumption that it will be financed out of retained profits. Only a substantial shortfall of profits below expectations or a serious drop in demand, believed to be more than temporary, will have much effect.

On the other hand there are of course many firms pressing against financial limitations, expanding their plant just as fast as they can raise funds to do so, which will be directly affected by a credit squeeze. But they constitute a small part of total investment in manufacturing; and this effect is a small part of the credit squeeze.

In Britain at least (and I suspect in other countries also) when bankers have to restrict credit, it is the personal and professional borrowers who bear the brunt. They constitute a large part of the squeezable margin in bank lending. Some of them are forced to postpone items of non-recurrent expenditure, repairs or improvements to the

[6] Dr. S. J. Prais gave the convenient title of "the giants" to the 100 largest British commercial and industrial companies studied at the National Institute of Economic and Social Research. They are responsible for something like one-third of the investment in British manufacturing industry.

house, purchase of a new or newer car, refrigerator, furniture or washing machine.

Others decide to make do in the old dingy office for a bit longer, to forgo the new typewriter or filing cabinet.

Another substantial sector to be affected is of course the retailers and providers of services which have particularly high income-elasticity of demand, the travel agents, beauty parlours, dry cleaners, toy shops and coffee bars. They suffer both directly in that their bankers may regard them as "inessential" and be rather harsh, and indirectly from any fall in the level of spending by consumers.

Housing is the classic example of a field of activity in which a rise in interest rates has most leverage effect. It can be shielded from the effect of a credit squeeze by special institutional arrangements but otherwise its share is likely to be significant.

When one considers the extent of these other sectors which are affected by monetary policy one becomes chary of assertions that such a policy falls mainly on productive investment. It becomes easier to accept the conclusions suggested by Professor Paish,[7] that the growth of productive capacity in Britain was not noticeably checked even by the severe credit restrictions of 1957/58, and was faster in the period from 1953 to 1960, when monetary policy was being employed to restrain inflation, than in the previous period 1949-53 when reliance was placed on other measures of restraint.

[7] "The Growth of the British Economy," *The Financial Times,* 14th September, 1960.

More damage to productive investment may be done by a series of special controls over building licences, capital issues, steel allocations etc. than when the same amount of restraint is imposed by monetary policy. For administrative reasons many special controls must have a lower limit. A surprising amount of resources may be devoted to "inessential" uses under such a lower limit, for instance the thousand and more tiny hire-purchase finance companies that emerged under the minimum limit of the Capital Issues Committee in Britain, and the position in Australia some years ago aptly described as "the milk-bar economy". Moreover a rationing system encourages hoarding of scarce materials, as shown by the very large hidden stocks of steel which emerged in Britain when steel rationing was abolished. Rapidly growing firms in manufacturing industry may find it more difficult to carry out their investment programmes under a regime of special controls than under one of tight money, for the additional reason that quotas under rationing always tend to be based on the past and at best allow only for pro rata expansion by all competing firms in an industry. It is therefore terribly difficult to get sufficient supplies or permits to build, in order to grow much faster than one's competitors.

It would be unfortunate if the welcome emphasis on the economics of growth should be marred by an assumption that the choice of monetary policy as one regulator is inimical to rising productivity.

Borrowing from banks in order to spend is one activity restrained by a tight money policy. Such a policy should include higher interest rates both long-term and short-term. This discourages the use of another important source of funds for spending—the selling of securities. For as security prices fall holders become unwilling to sell, especially if to do so means "selling at a loss". No comprehensive statistics are available to measure this source of funds. Moreover, there is still a slight taint of opprobrium attached to the idea of spending out of capital. In the best circles this really is not done, so economists—who of course move in the best circles—assume that it can't be happening on a substantial scale. However, the statistics that do exist for Britain over the last 15 years suggest to me that this has happened. The known elements of positive saving—mainly institutional through insurance and pension funds—show steady growth. The net total of personal saving, positive and negative, shows wide fluctuations, e.g. on one definition from about £50 million in 1949, 1950, and 1951, to £600 million in 1953, and £1,350 million in 1956. The most plausible explanation is that much of this fluctuation was due to variations in the rate of dissaving; that dissaving was large in the years of low interest rates and high security prices and fell as interest rates rose. This is confirmed by certain year to year variations which suggest that years of rising prices of ordinary shares such as 1954, were also years of heavy dissaving. A tight monetary policy should thus check dissaving both by driving down bond prices and by depressing ordinary share prices. It can no longer be assumed that a fall in bond prices will of itself cause a fall in the prices of ordinary shares. The main way that this is achieved by monetary policy is through companies deprived of other sources of funds pressing heavily on the market by making rights issues, as in Britain and Australia in November, 1960.

Higher interest rates are important as part of a restrictive monetary policy in several other ways. If interest rates on bank lending remain at a low level borrowers have an incentive to borrow up to the hilt. When funds are scarce, as in a credit squeeze, profitable employment for them is not difficult to find. What happens is that rates rise in the fringe markets, such as hire-purchase, second mortgages, and finance of accounts receivable (or book debts), although in the main markets—government securities and bank loans and deposits—rates can be kept down by official policy. When borrowing from banks is on overdraft the effectiveness of a restrictive monetary policy will be much reduced in these circumstances. If pressure is put on the banks to reduce their advances they respond by reducing overdraft limits; but at first this can be and may be offset by more borrowers making use of the hitherto unused portion of their power to borrow. Thus bank advances may be slow to fall as was clearly seen in Britain in May 1955, and in Australia in 1960. There is some restraint enforced by the rise in fringe rates and the tightness of credit, but much less than when, as in Britain in September 1957, all interest rates

are forced up. The slowness of the response when interest rates are kept low is particularly serious when it is remembered that we regard monetary policy as the tool for making frequent minor adjustments in the course of the fiscal year, and the budget as the tool for major changes.

Another aspect of interest rate policy is its effect on the flow of funds through financial institutions into investment in the public and private sectors of the economy. We assume that the rate of real investment in the public sector is determined as part of fiscal policy. In the course of the year any increase in the flow of funds into government securities will enable the authorities to reduce their short-term borrowing. It does not lead to any expansion in the rate of public investment. By reducing government short-term debt it reduces the supply of liquid assets and assists the authorities in restraining credit. This is particularly important in Britain where residual borrowing by the government is by the issue of Treasury Bills and these form part of the liquid reserves of the banking system. But it can never be easy for the authorities to restrain credit in any country when a large amount of public expenditure has to be financed by short-term borrowing. An increase in the flow of funds into government securities instead of into private securities will restrain expenditure in the private sector, as funds to finance such expenditure become more expensive and more difficult to obtain.

In Britain, for instance, the most important channels for personal saving are the life insurance companies and the pension funds. They provide funds for both the public and the private sectors by the acquisition of government securities, industrial shares and debentures; they also acquire property and make mortgage loans. They are free to vary the proportion of their annual inflow of funds allotted to these various uses. When interest rates on government securities are at a low level they are under considerable pressure to push out funds into the private sector in order to earn a high enough rate of return to provide the benefits and pensions they seek to achieve. As interest rates on government securities rise, and it becomes possible to cover actuarial commitments from the yield on them, such pressure eases; and more funds are used to buy government securities, as happened in 1958. It is sometimes argued that a rise in interest rates on government securities will not be effective because other interest rates will also rise, and the margin between the rates offered by public and private securities will be unchanged. This however, is to misunderstand the objectives of many of these institutions. Their aim cannot be described just as maximising future income. Minimising risks and avoiding losses are important. For some it might be true to summarise the aims as the earning of a certain minimum level of income with the least possible risk of loss. That can be achieved with a larger portfolio of government securities when interest rates are high. Moreover, in many cases, as in Britain in 1958, resolute action to restrain credit may increase the riskiness of some of the securities offered by the private

sector; the rise in land values and business profits may be checked; in some cases falls may occur. Expectations of such developments will reinforce the switch into public securities. Thus these big institutional buyers of industrial securities reduce their demand just when shortage of other sources of funds leads some industrial companies to try to accelerate the flow of new issues. The net effect is a lowering of share prices, the closure of the new issue market to smaller and riskier concerns and a general reinforcement of the credit squeeze.

Such consequences of monetary policy are of course severely restricted, if not prevented completely, by any measures to compel insurance companies and pension funds to hold a certain proportion of their assets in government securities, as has been proposed recently in Australia. Once they *have* to hold a minimum percentage the institutions will be much less likely to vary their annual distribution of funds according to circumstances; many will be apt to let the statutory minimum become their standard. Monetary policy thus loses part of its effectiveness. No doubt in theory the statutory minimum could be varied, or quotas laid down for the investment of new funds. But in practice these would be clumsy instruments—even more clumsy than the power of the Federal Reserve System to alter bank reserve ratios, when compared to its scope for open market operations.

Monetary policy operates over a large part of the economy. But it does not have much influence on the public sector. The flow of spending in this sector must be controlled in such a way as to reinforce, not to offset, the actions of the monetary authorities. Zeal for development must not be allowed to permit public authorities to push ahead with their programmes regardless of the effects on the general level of spending. On the other hand fears of the unpopular effects of restrictive monetary policies must not be allowed to cause a disproportionately large part of the burden of restraint to be borne by cuts in the investment programmes of the public sector. This can easily happen if too much importance is attached to preservation of low interest rates on the debt of the public sector. For then it may be argued that at that level of interest rates only a certain—rather small—sum can be borrowed from the public; the authorities may be averse to any increase in the budget surplus, or to short-term borrowing from the banking system; thus the investment programmes of the public sector may be pruned too severely. It is arguable that this has happened in Australia in recent years. The solution of course is a general rise in interest rates which will impose restraint on spending in the private sector and allow more public investment to take place without inflation.

It has been suggested that hire-purchase is another potent cause of inflation outside the range of orthodox monetary policy on which special controls should therefore be imposed. Controls over minimum down payments and maximum repayment periods—terms controls—do produce quick results on the level of spending on durable consumption goods. The risk is that the authorities will make too much use of

such a handy tool and disorganise the production schedules of the manufactures of motor cars and washing machines by frequent changes, as they have done in Britain. Do we really want to see frequent adjustments in terms controls, several times a year like the British Bank Rate? Might it not be better if this were regarded as one instrument of fiscal policy and variations were normally made in the budget, the power to vary at other times being held in reserve for use in grave emergency? This would facilitate the weighing up at each Budget time of the relative advantages of the imposition or tightening of hire-purchase terms controls with those of the imposition or stiffening of a purchase or sales tax on motor cars and other consumer durables. It can be argued that such a tax spreads the burden more equitably, because it is borne by the cash purchaser who escapes from hire-purchase controls, and also that the tax is more certain in its deflationary effect.

In support of the occasional use of hire-purchase controls it can be said that provided their adjustment is aligned with other measures of monetary and fiscal policy they can serve to extend the range of such measures more widely over the economy. A similar argument can be advanced in favour of the controls over margin requirements for share purchases exercised by the authorities in the United States. Differences in financial arrangements rule out any exact copying of such controls in Britain; but there are grounds for wishing that the authorities in Britain and in Australia had the means of exerting their influence more directly to curb occasional bursts of speculation in the share market. Perhaps power to vary the stamp duty levied on transactions in Britain might be considered for this purpose; this would also restrain speculative activity in real estate as would have been desirable in Australia in 1960.

Monetary policy to check inflation must make credit generally scarce and dear. In one country after another such policies have succeeded. Partial or incomplete monetary policies such as those employed in Britain in 1955/6 have nearly always failed. If low interest rates are preserved on government securities it is practically impossible to make credit generally scarce and dear; money flows around.

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WORK STOPPAGES IN THE UNITED STATES AND NEW ZEALAND

Both the thesis of cultural evolution and the thesis of institutional integration may be applied to the pattern of labour relations, including work stoppages, in any country.[1] The thesis of cultural evolution states that both the institutions of a culture and their enveloping matrix are in a constant process of change, today's pattern both growing out of yesterday's and giving rise to tomorrow's. The thesis of institutional integration holds that the economic institutions of any nation are closely related to the entire cultural milieu in which they function and that the milieu and the institutions mutually interact upon each other, the integration of the whole being accompanied by a "strain toward consistency". The application of these two theses to the institutional pattern of labour relations, including work stoppages, means that they must be understood, both in the United States and in New Zealand, in terms of their own historical development and the evolution of the broader societal pattern of which they are a part as well as in terms of the current integration of each with its enveloping milieu. Since there are significant differences between the cultural pattern of the United States and that of New Zealand the direct comparison of raw statistical magnitudes may be misleading. And any effort to say that one system is "good" and the other "bad" is improper. Let us look briefly at the societal patterns.

Among the significant differences between the United States and New Zealand none is more important than the role of the government and the attitude of the people toward it. The United States is a vast country divided into fifty state governments each with legislative, judicial and executive branches. The Federal government superimposed on municipal, county, and state units seems impersonal and distant to many Americans. To tens of millions of labourers through nearly two hundred years of American history (both before and after independence) "the government" seemed not only distant but hostile.

There were good reasons for the belief that the cultural milieu included hostile governmental institutions and an unsympathetic climate of public opinion. The restrictive impact of the Statute of Labourers (1351) and the Elizabethan Statute of Labourers (1562) and other English restrictive labour legislation was carried over into the American colony. Combinations of workers for the purpose of improving their condition or raising their wages were regarded as "criminal conspiracies". It was not until 1842 that the great Com-

[1] The present author has dealt with each of these elsewhere. See *Economics and Cultural Change*, McGraw-Hill, New York, 1938; and *Economic Institutions*, McGraw-Hill, New York, 1941.

monwealth *vs.* Hunt decision overthrew this doctrine in the United States. But even then the battle of workers for the right to organize freely in independent unions and the right to full freedom of collective bargaining was far from won.

Some workmen were little better than serfs living in company coal towns, where they were paid in "scrip" good only at the company store. Among the many anti-union devices used by other employers were the "yellow dog contract" and the court "injunction" —a pair that made an invincible combination. The "yellow dog contract" was a written agreement which each worker was asked to sign before being given a job by a prospective employer. In it the worker stated that he was not a member of a union and contracted not to become a member of one during his employment. This effectively maintained an "open shop", e.g. a non-union shop. If a worker joined a union he was guilty of violating his written agreement and could be sued for breach of contract. But worse still, any worker who talked to his fellows about forming a union, or any person from outside who tried to organize a union, was guilty of "attempting to induce a breach of contract". Courts are always strict guardians of contracts and it was easy to persuade a sympathetic judge to issue an "injunction", e.g. a restraining order forbidding any person from attempting to induce breaches of contract. A union organizer arrested for violating a court order was facing a "contempt of court" charge, which would be heard by the judge who issued the injunction. On such a charge the accused had no right to a trial by a jury of his peers and, in practice, could anticipate swift imposition of a fine, a gaol sentence, or both.

The formation of the American Federation of Labor in 1886, the passage of the Sherman "Anti-Trust" Act in 1890, and the inclusion of a clause, outlawing the yellow-dog contract, in the Erdman Act of 1898, led some to believe that the hostility of the governmental environment toward organized labour was on the wane. They had not taken full account of the written Constitution of the United States and its guardians, the courts. In 1908 the Supreme Court, in Adair *vs.* U.S., declared the anti-yellow-dog clause of the Erdman Act unconstitutional. In the same year the Sherman Act which was clearly an anti-monopoly law directed against big business and intended to maintain competition in the market by prohibiting "combinations in restraint of trade" was turned against labour. In Lowe *vs.* Lawlor (1908) an anti-union employer in Danbury, Connecticut, charged that a union boycott against his goods constituted a "combination in restraint of trade" and sued the union for $80,000 in damages, plus costs. The issue was clear—was the Sherman Act applicable to labour organizations? The court said that it was and, in accord with one of the provisions of the law intended to deter violations, awarded "triple damages plus costs", a total of $250,000. This effectively smashed the union since its treasury had nothing remotely resembling

a quarter of a million dollars. The attachment of personal property in an effort to satisfy the court's judgment bankrupted many members and produced a national outcry.

In the same year, 1908, William Howard Taft was elected President and took the occasion of his inaugural address to defend the use of the court injunction against union organization. Four years later the tide seemed to turn when Woodrow Wilson was elected President. Legislation providing an eight-hour day for railroad workers was passed and the President supported the Clayton Act of 1914 which appeared to make yellow-dog contracts, injunctions, and triple damages illegal. Samuel Gompers, the able, aggressive, long-time president of the American Federation of Labor hailed the act as labour's "Magna Carta". His praise was premature. In the Hitchman Coal and Coke *vs.* Mitchel case (1917) the Court's decision left both yellow-dog contracts and anti-labour injunctions valid.

Although the decade of the 1920s was generally prosperous for the United States, troubles descended like a plague of locusts upon organized labour. In 1920 ex-President Taft became Chief Justice of the Supreme Court and a long series of anti-labour decisions followed. In 1924 Samuel Gompers died. "Scientific personnel management" was invented. Compulsory arbitration of industrial disputes was tried for three uneasy years in Kansas before being declared unconstitutional by that state's Supreme Court. To top it all American industry staged the greatest, the most efficiently organized, and the best financed "union-busting campaign" in American history.

The above brief recital of labour's tribulations at the hands of legislatures and courts does not include the minor gains made here and there by American labour but it also does not include the sorry history of the use of the police and even the armed forces against labour by the executive branch of the government. It is not surprising that organized labour in the United States entered the decade of the "Great Depression" with a deep suspicion of all branches of government. Unions jealously guarded every hard-won gain and were even accustomed to fighting for their very existence. Hard-won freedoms are dearly prized. The suspicious, aggressive independent nature of American unions and the historical evolution of the institution must be remembered in assessing and interpreting the statistics on work stoppages in the United States. Only by remembering that for many decades American labour regarded government as an enemy to be fought or a menace to be avoided can New Zealanders hope to understand the vigour with which American unions now defend their freedoms and the hostility with which they regard governmental "interference" and regulation.

It is not necessary to be an expert on New Zealand labour history to see that the evolution of organized labour in the Welfare State environment has been quite different. There are a number of reasons for the different attitude toward government taken by New Zealand-

ers, especially by organized labour. The size of New Zealand's population is one factor of which New Zealanders are very conscious. It is true that two and one-half million people make a far more intimate group than one hundred and seventy do, and are far more likely to have a close personal feeling toward the government and to regard it as "our" government instead of feeling that the government is a distant impersonal and often hostile "they' group. Second, the New Zealand government has more often been looked upon as the defender and protector of the common man rather than the protector of property and privilege—a viewpoint which developed in the nineteen-thirties in the United States. A third factor has been the greater willingness of the New Zealand people to tackle problems through governmental means instead of private. That is, there has been a friendlier attitude toward socialization of enterprise in New Zealand, than in the United States. Looking upon this trend sympathetically the people of New Zealand have become accustomed to a broader agenda of governmental activities than Americans have. Another difference is found in national political organization. Since New Zealand has no written constitution, popular legislation has never had to run the gauntlet of hostile court decisions, appeal after appeal, and final judicial invalidation of legislation as "unconstitutional". A fifth difference results from the fact that there is no division into national and subordinate state jurisdictions in New Zealand. There cannot be a legislative overlap and conflict between federal and state laws in New Zealand. Neither can there be a gap or a "no-man's-land" between them as there can be in the United States. In New Zealand it is not necessary to win in two houses of Congress and then fight the constitutional battle from the lowest level of the federal courts to the Supreme Court at the top.

In the United States even federal legislative and federal judicial successes are not enough. It is also necessary to win in both houses of fifty state legislatures and in the court systems of all those states. And even if the battle is won in all these places it is unlikely that the results will be uniform throughout the federal and all the state jurisdictions. Never having experienced these difficulties, New Zealand labour has never felt the hostility of the enveloping milieu in the same way that American labour has. Having not been through the same storms, New Zealand labour does not hug about itself so tightly a protective cloak of hard-won rights and freedoms as does organized labour in the United States. The two rights which American organized labour regards as most fundamental, the freedom of collective bargaining and the right to strike, are circumscribed though not eliminated in New Zealand, where many strikes are illegal and free collective bargaining is often replaced by compulsory conciliation and arbitration.

Since the institutionalized pattern of labour relations differs substantially in the two countries, and since the milieu in which the

historical evolution of the institution took place differed fundamentally, it is not surprising to find that the statistics on work stoppages differ. It would be surprising if the less hostile, less aggressive, less free labour force of New Zealand[2] produced more and longer strikes than resulted from the freer, harder hitting, less controlled relations between labour and management in the United States.

Table 1 compares the number of days lost in industrial disputes per 1,000 civilian wage and salary earners in New Zealand, Australia, and the United Kingdom with the United States and Canada.

TABLE 1

Industrial Disputes in Various Countries
Working days lost per 1,000 civilian wage and salary earners

Year	New Zealand		Australia	United Kingdom	U.S.A.	Canada
	*	**				
1947 ..	241	188	590	153	796	764
1948 ..	212	168	700	100	767	275
1949 ..	486	385	544	92	1,165	320
1950 ..	590	472	810	70	867	405
1951 ..	2,495	1,988	332	84	483	249
1952 ..	59	48	450	88	1,223	759
1953 ..	39	32	410	107	569	345
1954 ..	40	33	339	119	466	386
1955 ..	100	82	369	181	563	472
1956 ..	44	37	403	98	639	295
1957 ..	52	42	226	394	316	367
1958 ..	31	27	152	162	461	639
1947-58 Ave.	356·7	291·8	444·6	137·3	692·9	439·7
1947-50 Ave.	382·2	303·2	661·0	103·8	898·8	441·0
1952-58 Ave.	52·1	43·3	335·6	164·1	605·3	466·1

*Based on "Surveyed Employees" as in half-yearly employment surveys.
**Based on Department of Labour figures for "Wage and Salary Earners".

Reference: Labour and Employment Gazette, August 1959 (Revised), page 50.
Sources: Australia: Labour Reports and Monthly Bulletin of Employment Statistics.
United Kingdom: Annual Abstract of Statistics and Ministry of Labour Gazette.
U.S.A.: Employment and Earnings: Annual Supplement Issue, May 1959.
Canada: Year Book and Labour Gazette.
New Zealand: Monthly Abstract of Statistics and Department of Labour.

Two columns are shown for New Zealand. The first is based on the figures for "Surveyed Employees" as published in the half-yearly employment surveys. The second is based on unpublished

[2] The United States may be moving at least a short distance toward New Zealand's situation. Some observers think that the more sympathetic environment which began in the mid-thirties has already produced a noticeable change both in the type of union leadership and in the nature of union tactics.

figures for "Wage and Salary Earners" supplied by the Department of Labour. These appear to provide a greater degree of comparability with figures for the other countries though differences in occupational structure in the various countries prevent complete comparability. New Zealand, for example, has a much larger proportion of her labour force in agricultural and pastoral pursuits than a highly industrialized country like the United States.

The table indicates that New Zealand's record since 1951 is the best of the countries shown, the number of working days lost per thousand wage and salary earners being trivial. On the basis of a twelve year average the United Kingdom shows the lowest ratio of working days lost and is followed by New Zealand, Canada, Australia and the United States in that order. However, in 1957 and 1958 the New Zealand and Australian ratios were both lower than those for the United Kingdom, and the United States showed a lower ratio than Canada. The effect of severe stoppages can be seen in the U.S. figures for 1949 and 1952 and especially in the extremely high figures for New Zealand in 1951.

The New Zealand figures are remarkable for the difference before and after 1951. The average number of work days lost during the four years 1947 to 1950 was over seven times the average number lost during the seven years 1952 to 1958 inclusive. Since the compulsory industrial conciliation and arbitration system operated during both periods it is clear that not all the credit for New Zealand's excellent recent record can be claimed by the ICA system.

There are a number of factors which help to explain why most of the figures for New Zealand are smaller than those for the United States. One cause of the difference is to be found in the greater size of productive establishments in the U.S. Table 3 indicates that approximately three-fourths of all the time lost in work stoppages in the United States is caused by large strikes, e.g. those involving 1,000 men or more. Another factor is the very substantial difference in the degree of industrialization. The extent and severity of labour troubles are both apt to increase as the degree of industrialization increases. It will be interesting to see whether the increased industrialization of the next twenty-five years in New Zealand and the increasing size of establishments which may be expected can be accomplished without an increase in the proportion of total labour time lost in work stoppages.

Two additional reasons for the lower proportion of time lost in New Zealand are found in the nature of New Zealand institutions. In New Zealand the Industrial Registrar has the power to disallow clauses in union constitutions which would make it possible for two unions to claim jurisdiction over the same workers or processes. In practice this effectively prevents jurisdictional strikes. In similar manner the compulsory union membership provisions prevent strikes over union shop and closed shop issues. Thus, two categories of strikes

which can and do occur in the United States are completely absent in New Zealand.

A fifth difference is found in the degree of union aggressiveness and the nature of union tactics and policies in two different environments. The decisive action taken by the government in the 1951 waterside strike provided an object lesson which was not lost on other union leaders in New Zealand.

The sixth and most significant difference between the labour systems of the two countries lies in the compulsory conciliation and arbitration system which directly affects nearly half of the wage and salary workers of New Zealand and indirectly influences most of the remainder. There is no doubt in the writer's mind that the system serves as a substitute for direct action in many cases. There is also no doubt that much of its success stems from the extraordinarily strong support that it receives. Children are taught from primary school onward that the way to settle disputes is by arbitration. And the system is defended by employers and unions as well as the government. It appears that one result of the position taken by the government and by the President of the Federation of Labour in the great 1951 strike was to strengthen the Arbitration Court. The reduction in the work time lost per 1,000 after 1951 cannot be credited to the mere existence of the ICA system but resulted from a change in the milieu in which the conciliation and arbitration system operated. However, the level of time lost was relatively low even before 1951 in relation to both Australia and the United States, and for this the New Zealand system must be given credit. It has the advantage, of course, of being more unitary. It is not plagued by the inter-state and intra-state complications introduced by a system that has both federal and state jurisdictions as the Australian and American systems each have. New Zealand has only one set of laws and only one arbitration court. In addition, the personality and skill of Sir Arthur Tyndall

Notes to Table 2 (opposite)

[1] All work stoppages involving six or more workers and lasting one full shift or longer.

[2] The figures are simple averages; each strike is given equal weight regardless of its size.

[3] The figures involve duplicate counting where workers were involved in more than one stoppage during the year. This is particularly significant for 1949 when 365,000 to 400,000 miners were out on three distinct occasions thus accounting for 1,150,000 out of a total of 3,030,000 workers.

[4] Prior to 1951 the "total unemployed" excluded a number of classes of employees and the resulting % figures are exaggerated by about 0·6 of a point. Per cent idleness is exaggerated by about 0·1 of a point. From 1951 onward "total employed" is consistent with BLS "non-agricultural employment" excluding government employees.

[5] Estimated working time was computed by multiplying "total employed" by the number of days worked by most employees. This excludes Saturdays when customarily not worked, Sundays and holidays.

TABLE 2

Work Stoppages in the U.S.A., 1916–1958

Stoppages			*Workers Involved*		*Man-days of Idleness*		
I	II	III	IV	V	VI	VII	VIII
Year	Number[1]	Average Duration[2] (Calendar Days)	Number[3] ('000s)	Per cent of total employed[4]	Number ('000s)	Per cent of estimated working time of all workers[5]	Per worker involved
1916	3,789		1,600	8·4			
1917	4,450		1,230	6·3			
1918	3,353		1,240	6·2			
1919	3,630		4,160	20·8			
1920	3,411		1,460	7·2			
1921	2,385		1,100	6·4			
1922	1,112		1,610	8·7			
1923	1,553		757	3·5			
1924	1,249		655	3·1			
1925	1,301		428	2·0			
1926	1,035		330	1·5			
1927	707	26·5	330	1·4	26,200	0·37	79·5
1928	604	27·6	314	1·3	12,600	0·17	40·2
1929	921	22·6	289	1·2	5,350	0·07	18·5
1930	637	22·3	183	0·8	3,320	0·05	18·1
1931	810	18·8	342	1·6	6,890	0·11	20·2
1932	841	19·6	324	1·8	10,500	0·23	32·4
1933	1,695	16·9	1,170	6·3	16,900	0·36	14·4
1934	1,856	19·5	1,470	7·2	19,600	0·38	13·4
1935	2,014	23·8	1,120	5·2	15,500	0·29	13·8
1936	2,172	23·3	789	3·1	13,900	0·21	17·6
1937	4,740	20·3	1,860	7·2	28,400	0·43	15·3
1938	2,772	23·6	688	2·8	9,150	0·15	13·3
1939	2,613	23·4	1,170	4·7	17,800	0·28	15·2
1940	2,508	20·9	577	2·3	6,700	0·10	11·6
1941	4,288	18·3	2,360	8·4	23,000	0·32	9·8
1942	2,968	11·7	840	2·8	4,180	0·05	5·0
1943	3,752	5·0	1,980	6·9	13,500	0·15	6·8
1944	4,956	5·6	2,120	7·0	8,720	0·09	4·1
1945	4,750	9·9	3,470	12·2	38,000	0·47	11·0
1946	4,985	24·2	4,600	14·5	116,000	1·43	25·2
1947	3,693	25·6	2,170	6·5	34,600	0·41	15·9
1948	3,419	21·8	1,960	5·5	34,100	0·37	17·4
1949	3,606	22·5	3,030	9·0	50,500	0·59	16·7
1950	4,843	19·2	2,410	6·9	38,800	0·44	16·1
1951	4,737	17·4	2,220	5·5	22,900	0·23	10·3
1952	5,117	19·6	3,540	8·8	59,100	0·57	16·7
1953	5,091	20·3	2,400	5·6	28,300	0·26	11·8
1954	3,468	22·5	1,530	3·7	22,600	0·21	14·7
1955	4,320	18·5	2,650	6·2	28,200	0·26	10·7
1956	3,825	18·9	1,900	4·3	33,100	0·29	17·4
1957	3,673	19·2	1,390	3·1	16,500	0·14	11·4
1958	3,694	19·7	2,060	4·8	23,900	0·22	11·6

Sources: Yearbook of Labour Statistics 1958, I.L.O., Table 35, p. 551; *Handbook of Labour Statistics*, B.L.S., 1950, p. 142; *Statistical Abstract of the United States*, U.S. Department of Commerce, 1958, Table 295, p. 237; *Monthly Labour Review*, B.L.S., 82: 6 (June 1959), Table 1, p. 637.

(the present judge), the lack of legalism in the court, and the mitigating influence of the system of General Wage Orders which often take some of the steam out of individual union demands—all these play a part in the success of the New Zealand system.

Table 2, taken from official sources, is largely self-explanatory but some interpretative comments may be interesting especially to non-American readers. Columns II and IV show the number of stoppages and the number of workers involved. The effect of the hostility of the environment during the 1920s and early 1930s is clearly revealed in the small numbers for those years. As the eye runs down the figures in column II it is interesting to remember that the Norris-LaGuardia (anti-injunction) Act was passed in 1932; the bottom of the depression was passed and Section 7a appeared in the National Industrial Recovery Act in 1933; the Wagner Act (National Labor Relations Act) was passed in 1935 and declared constitutional in 1937; the effect of our "defense boom" is easily seen in the figure for 1941—the largest since 1917; 1945 and 1946 constituted a post-war "testing period' in which labour and management each strove to remove what they regarded as wartime abuses. One of the 1946 stoppages was the severe and protracted steel strike. In 1947 the Taft-Hartley Law (Labor Management Relations Act), the last major piece of federal labour legislation in the U.S., was passed.

The average duration of U.S. strikes in calendar days was 19·3 for the period 1927 to 1958 which differs little from the 19·78 average of the ten year period ending in 1958. A significant shortening of duration took place during the war years 1942 to 1945, especially during the height of wartime production pressure during 1943 and 1944.

When considering the number of workers involved in work stoppages as well as the number of stoppages themselves, it is well to remember that the size of the civilian labour force in the United States increased by approximately 69 per cent from 1916 to 1958, and that the union membership which stood at 2,857,000 in 1933 had reached 18,477,000 in 1956, an increase of 547 per cent. The average number of workers involved annually during the entire period from 1916 to 1958 was 1,239. The average for the ten years ending with 1958 was 2,313, an increase of 86·7 per cent over the average for the entire period. If the average of the seven most recent years is compared with the average of the first seven years the increase is only 24·8 per cent. In view of the 69 per cent increase in civilian labour force and the 547 per cent increase in union membership it is surprising that the increase in the number of men involved in stoppages was not larger. In fact, as column V shows, the per cent of workers involved has been smaller in each of the last six years than it was in any of the first six years. The average percentage for the last decade does not differ significantly from the average percentage for the entire period since 1916.

Any evaluation of the seriousness of work stoppages in the U.S. necessarily concentrates on the man-days of idleness (column VI) and particularly on their relation to the total working time of all workers (column VII). The effect of superimposing the great steel strike on a wave of post-war strikes can be seen in the 1946 peak in number of man-days lost. The basis for concern about severe and prolonged strikes is also clear. Although there were other contributing factors, the 1946 situation was certainly a circumstance helping to explain the passage in 1947 of the Taft-Hartley Act with its "emergency provisions" for dealing with severe and prolonged strikes.

Column VII indicates that for the entire period since 1926 only approximately one-third of one per cent of total working time has been lost in the United States as a result of work stoppages of all kinds and sizes. In 1957 and 1958 the proportion was less than one-fourth of one per cent. The smallness of these percentages surprises many Americans and most non-Americans. Even in 1946, the worst recorded year, only 1¼ per cent of total work time was lost in direct man-days of strike idleness. In the case of severe and prolonged strikes, especially if they occur in basic industries, there is, of course, additional work time lost in related industries. In normal years, however, the amount of such time is small.

The figures in column VIII are "duration" figures of a different sort than those found in column III. They indicate that in 1958 a striker lost an average of 11·6 days of work time. The total number of man-days of idleness since 1926, 788,810,000, divided by the total number of workers involved, 53,286,000, gives an overall average of 14·8 man-days of idleness per worker involved. The similar figure for the ten years ending in 1958 is 14·0, indicating that the amount of time a striker might expect to lose in the most recent decade does not differ significantly from the average of the three decades for which figures are available.

TABLE 3

Size of Work Stoppages, 1958

Size of Stoppage (Number of Workers Involved)	Stoppages beginning in 1958		Workers Involved		Man-days Idle during 1958 (all stoppages)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
All Sizes	3,694	100·0	2,060,000	100·0	23,900,000	100·0
6 and under 20	646	17·5	7,790	0·4	119,000	0·5
20 and under 100 ..	1,406	38·1	68,200	3·3	1,100,000	4·6
100 and under 250 ..	705	19·1	111,000	5·4	1,570,000	6·6
50 and under 500 ..	371	10·0	127,000	6·2	1,530,000	6·4
500 and under 1,000 ..	234	6·3	160,000	7·8	1,720,000	7·2
1,000 and under 5,000 ..	279	7·6	548,000	26·6	5,280,000	22·1
5,000 and under 10,000..	32	·9	216,000	10·5	2,020,000	8·4
10,000 and over.. ..	21	·6	823,000	40·0	10,600,000	44·2

Note: Because of rounding, sums of individual items may not equal totals.

Most work stoppages in the U.S. are small. In 1958, 2,052 stoppages involved less than 100 workers each. This 55·6 per cent of all stoppages, however, accounted for only 3·7 per cent of all workers involved and for only 5·1 per cent of the total man-days of idleness. At the other extreme each of twenty-one strikes involved more than 10,000 workers, but this six-tenths of one per cent of all stoppages accounted for 40·0 per cent of all workers involved in strikes and for 44·2 per cent of all man-days of idleness during the year. It is clear why these are called "major stoppages", but the attention bestowed on these obscures another group of almost equal importance. Let us use the term "large stoppages" to refer to strikes involving 1,000 and less than 10,000 workers each. In 1958, the 311 large stoppages were 8·5 per cent of the total number and accounted for 37·1 per cent of all workers involved and for 30·5 per cent of the total man-days of strike idleness. Although the "large" and "major" stoppages taken together constitute less than 10 per cent of the total number of stoppages, they account for approximately three-fourths of all the workers involved and three-fourths of all the time lost in strikes, as shown in Table 3.

At once the question arises as to whether or not major strikes are becoming more numerous and more severe. Severity may be taken to mean involving more workers or having greater duration or both.

TABLE 4

Work Stoppages involving 10,000 or more Workers

Period	Stoppages Involving 10,000 or More Workers					
	Number	Per Cent of Total for Period	Workers Involved		Man-days Idle	
			Number (in thousands)	Per Cent of Total for Period	Number* (in thousands)	Per Cent of Total for Period
1935–39 Ave.	11	0·4%	365	32·4%	5,290	31·2%
1947–49 Ave.	18	·5	1,270	53·4	23,800	59·9
1945 ..	42	·9	1,350	38·9	19,300	50·7
1946 ..	31	·6	2,920	63·6	66,400	57·2
1947 ..	15	·4	1,030	47·5	17,700	51·2
1948 ..	20	·6	870	44·5	18,900	55·3
1949 ..	18	·5	1,920	63·2	34,900	69·0
1950 ..	22	·5	738	30·7	21,700	56·0
1951 ..	19	·4	457	20·6	5,680	24·8
1952 ..	35	·7	1,690	47·8	36,900	62·6
1953 ..	28	·5	650	27·1	7,270	25·7
1954 ..	18	·5	437	28·5	7,520	33·3
1955 ..	26	·6	1,210	45·6	12,300	43·4
1956 ..	12	·3	758	39·9	19,600	59·1
1957 ..	13	·4	283	20·4	3,050	18·5
1958 ..	21	·6	2,060	40·0	23,900	44·2

Source: B.L.S. Bulletin 1234, *Analysis of Work Stoppages 1957*, B.L.S., 1958 Table 2, p. 14.

*Includes idleness in any stoppage beginning in earlier year.

The figures on number of major stoppages shown in column II of Table 4 do not support the view that major stoppages are becoming more frequent. Rather, they appear to support an opposite view. The average of the three years ending in 1958 is lower than the average of any other three consecutive post-war years, as can be seen by an examination of the accompanying three years' moving average. In fact, the three year moving average data show some evidence of a declining trend.

Work Stoppages involving 10,000 or more Workers

Year	Number	Moving Average
1945	42	
1946	31	29·3
1947	15	22·0
1948	20	17·7
1949	18	20·0
1950	22	19·7
1951	19	25·3
1952	35	27·3
1953	28	27·0
1954	18	24·0
1955	26	18·7
1956	12	17·0
1957	13	15·3
1958	21	

It is hardly possible to see evidence of increasing severity in either the figures for workers involved or man-days idle as per cent of total for the period. What these figures show, instead, is that there is a tendency to bunch the major strikes in certain years. (See Table 4.) This results from the widespread practice of writing collective bargaining agreements to run for two or three years. In years when several major agreements expire in the same year and result in stoppages, the figures jump. In years when few hotly contested agreements expire the figures slump. It is possible that there would be fewer stoppages and less strike-caused idleness in the United States if agreements had no expiration date, as in New Zealand, and ran until altered by agreement.

Table 5 gives another view of duration of American work stoppages. Most stoppages are short. More than one-fourth (27·4 per cent) last less than four days, and more than two-fifths (42·5 per cent) last less than a week. The typical, or modal, strike duration is seven and less than fifteen days. Note that the 63·9 per cent of the strikes which last less than fifteen days account for 52·4 per cent of all workers involved but result in only 17·5 per cent of the

TABLE 5

Duration of Work Stoppages ending in 1958

Duration (Calendar Days)	Stoppages		Workers Involved		Man-days Idle	
	Number	Per Cent of Total	Number	Per Cent of Total	Number	Per Cent of Total
All periods	3,632	100·0	1,990,000	100·0	24,400,000	100·0
1 day	418	11·5	129,000	6·5	129,000	0·6
2 & less than 4 days ..	579	15·9	271,000	13·6	551,000	2·6
4 & less than 7 days ..	548	15·1	304,000	15·2	1,040,000	4·9
7 & less than 15 days ..	779	21·4	340,000	17·1	2,040,000	9·5
15 & less than 30 days ..	593	16·3	477,000	24·0	5,690,000	26·6
30 & less than 60 days ..	446	12·3	407,000	20·4	8,210,000	38·3
60 & less than 90 days ..	136	3·7	33,100	1·7	1,410,000	6·6
90 and over	133	3·7	32,000	1·6	2,350,000	11·0

Source: Statistical Abstract of the United States, 1959.

[1] The totals in this table differ from those in the other tables because these relate to stoppages ending during the year, including any 1957 idleness in these strikes.

Note: Because of rounding, sums of individual items may not equal totals.

total man-days of idleness, whereas the 28·6 per cent of the strikes which last fifteen but less than forty days account for 44·4 per cent of the workers involved and result in 64·9 per cent of the idleness. Only 19·7 per cent of the strikes last more than thirty days but they involve 23·7 per cent of the total workers involved and result in 55·9 per cent of the total man-days of idleness.

It is quite clear that most strikes in the United States are neither large nor long, but that the hard core of the problem lies with those strikes that do either involve large numbers or extend over protracted periods or both.

Table 6 provides data on work stoppages in New Zealand. It will be noted that the number of strikes was above normal from 1944 until 1952. The abnormalities of the years 1950 and 1951 are clearly visible in the figures. In 1950 more workers were involved in strikes in New Zealand than in any previous year. The 91,492 workers constituted 12·5 per cent of the total labour force—much the largest percentage ever involved in strikes. The widespread nature of the 1950 disturbances is further indicated by the 1,189 firms that were affected since this number was exceeded in only two years since 1934. Although the number of strikes was large, they were not long, the average duration being only 4·40 days or less than three days per striker.

The pattern in 1951 was quite different. A smaller number of strikes produced a total duration approximately six times as long, and an average duration seven times as long. They involved less than one-third as many firms and only two-fifths as many workers, but they resulted in the loss of 1,157,390 working days as compared with 271,475 days in 1950, the largest total up to that time. The average

TABLE 6

Work Stoppages in New Zealand

Year	Number of Stoppages	Total Duration Days	Avragee Duration Days	Firms Affected	Workers Involved *	Workers Involved as % of Total Labour Force**	Working Days Lost*	Average Days Lost Per Worker Involved
1934..	24	120	5·00	37	3,773		10,393	2·75
1935..	12	88	7·33	65	2,323		18,563	7·99
1936..	43	220¾	5·13	128	7,354		16,980	2·31
1937..	52	320	6·15	72	11,411		29,916	2·62
1938..	72	287	3·99	103	11,388		35,456	3·11
1939..	66	415½	6·30	636	15,682		53,801	3·43
1940..	57	434½	7·62	99	10,475		28,097	2·68
1941..	89	233	2·62	97	15,261		26,237	1·72
1942..	65	143½	2·20	78	14,345		51,189	3·57
1943..	69	122½	1·77	114	10,915		14,687	1·35
1944..	149	280¾	1·88	269	29,766		52,602	1·77
1945..	154	379½	2·46	1,255	39,418		66,629	1·69
1946..	96	569¾	3·85	122	15,696		30,393	1·94
1947..	134	833¾	6·22	234	26,970	3·83	102,725	3·81
1948..	101	608½	6·02	885	28,494	4·01	93,464	3·28
1949..	123	671½	5·46	1,315	61,536	8·55	218,172	3·55
1950..	129	568	4·40	1,189	91,492	12·50	271,475	2·97
1951..	109	3,464	31·78	354	36,878	4·98	1,157,390	31·38
1952..	50	108½	2·17	177	16,297	2·17	28,123	1·73
1953..	73	145½	1·99	880	22,175	2·89	19,291	0·87
1954..	61	136	2·23	447	16,153	2·05	20,474	1·27
1955..	65	210¾	3·24	114	20,224	2·53	52,043	2·57
1956..	50	389½	7·79	426	13,579	1·67	23,870	1·76
1957..	51	165	3·24	88	15,545	1·87	28,186	1·81
1958..	49	152½	3·11	83	13,709	1·61	18,788	1·37
1959..	73	228½	3·13	119	18,762	2·17	29,651	1·58
Total	2,016	11,294·75		9,386	569,621		2,498,595	
Ave...	77·5	434·4	5·60	361	21,908·5		96,100	4·39
1946 to 1950								
Total	583	3,251		3,745	224,188		716,229	
Ave...	116·6	650·2	5·58	749·0	44,837·6		143,245·8	3·19
1952–59								
Total	472	1,535·5		2,334	136,444		220,426	
Ave...	59	191·9	3·25	291·8	17,055·5		27,553·2	1·62

Source: New Zealand Official Year Book 1959, Wellington, Department of Statistics, Government Printer, 1959, p. 1073. See also previous issues. Also *Monthly Abstract of Statistics,* Department of Statistics, various issues.

*Includes workers indirectly involved.

**These percentages were calculated by the author using labour force figures as of April 1st each year. When the U.S. practice of using data as of July 1st was employed the percentages remained unchanged except in four cases which showed a difference of only one or two points in the second decimal.

number of days lost per striker jumped to more than ten times the figure for the previous year. The real abnormality of the figures for 1951 is largely the result of one strike, the severe and prolonged waterside disturbance.

The drastic action taken in 1951 to halt the strike and break the union produced a real turning point in New Zealand's labour relations. For example, it cut the number of strikes per year in half and nearly halved the average duration. Both the number of firms affected and the number of workers involved dropped by more than 60 per cent.[3] And the average working days lost per year was reduced by more than 80 per cent.[4] The average number of days lost per worker involved was also reduced, in this case by nearly one-half, falling from 3·19 to 1·62. It is quite difficult to escape the conclusion that the total labour relations situation in New Zealand in recent years is significantly different from the situation in the post-war years prior to the great upheaval of 1951.

The figures on duration of stoppages in New Zealand for the year 1958 are shown in the accompanying table. More than half, an extraordinarily large percentage, last for one day or less. Many of these are "stopwork meetings" or "protest strikes". Nearly three-fourths of New Zealand stoppages last for three days or less. Only approximately 11 per cent of the strikers are involved in stoppages that last more than three days. Short strikes, of less than three days, account for nearly two-thirds of the total time lost.

TABLE 7

Duration of Work Stoppages in New Zealand during 1958

Duration	Stoppages		Workers Involved		Working Days Lost	
	Number	%	Number	%	Number	%
1 day and less	25	51·0	6,996	51·0	3,963	21·1
Over 1 day but less that 4 days..	11	22·4	5,259	38·3	8,122	43·3
Over 3 days but less than 1 week	7	14·3	775	5·7	2,241	11·9
1 week but less than 2 weeks ..	5	10·2	628	4·6	3,952	21·0
2 weeks but less than 4 weeks ..	1	2·1	51	0·4	510	2·7
4 weeks but less than 8 weeks ..	..	..	..	..	..	..
8 weeks and over	..	..	..	..	..	..
Totals	49	100·0	13,709	100·0	18,788	100·0

Source: Based on data in the *New Zealand Yearbook 1959*, Wellington, Department of Statistics, Government Printer, 1959, p. 1075.

Conclusions

The proportion of work time lost in strikes is small in the United States, but it is even smaller in New Zealand. For three decades the figures for man-days of idleness resulting from work stoppages have averaged less than one-third of one per cent of total work time in the United States. Although precise figures for New

[3] The average number of firms affected dropped from 749·0 to 291·8 or 61%; and the average number of workers involved dropped from 44,838 to 17,056 or 62%.

[4] The average number of working days lost per year dropped from 143,246 to 27,553 or 80·8%.

Zealand, comparable with those for the United States, are not at present available, the relation between the figures for the two countries may be approximately inferred from the figures for the number of working days lost per 1,000 wage and salary earners which were presented in Table 1 for both countries on a comparable basis. The U.S. figure of 692·9 is approximately two and one-third times as large as the New Zealand average of 291·8. It is probable that a similar relationship holds for the percentage of total work time lost in the two countries. If so, the figure is probably between one-third and one-half that for the United States. Since the American figure of one-third of one per cent may be described as negligible, the substantially smaller New Zealand figure may be described as trivial.

The reason for the lower ratio of lost time in New Zealand is not to be found in a smaller relative number of strikes. At a recent census date the population of the United States was 69·3178 times that of New Zealand. If the 77·5 annual average number of strikes in New Zealand be multipliled by 69·3178 it indicates that New Zealand is having the equivalent of an American yearly average of 5,372 strikes and this is 64 per cent larger than the actual U.S. average of 2,914 per year.

New Zealand strikes are both smaller in average size and shorter in average duration than strikes in the United States. Since the number of strikes in New Zealand is large in proportion to the size of population, it is fortunate that they are generally small and brief. The workers involved in stoppages in the U.S. in 1958 were 4·8 per cent of the total number employed, but in New Zealand the workers involved were only 1·6 per cent of the total labour force—a proportion only one-third as large.

It is in duration that the most striking difference is observable. If the average duration of strikes in New Zealand, 5·60 days for the period 1934 to 1959, is compared with the average duration in the United States for the same period, it appears that the American strikes are about three times as long. A similar relationship is found if the comparison is made on the basis of average days lost per worker involved. The American figure of 13·45 for the twenty-five year period 1934 to 1958 is almost exactly three times the New Zealand figure of 4·48 for the same period.

There are a number of reasons for the shorter duration of New Zealand strikes. First, the conciliation and arbitration machinery in New Zealand is in a state of continuous readiness to deal with disputes and this reduces delay. Second, the compulsory features of the labour laws of New Zealand require the submission of most disputes to the constituted authorities. Third, the tendency of unions in the New Zealand milieu to engage in "stopwork meetings" and "protest strikes" has the effect of reducing the average, since these are almost always very short. Fourth, the exercise of authority appears to play a substantial part in shortening the duration of strikes. Both New

Zealand and American experience support this belief. In New Zealand, the reduction in the duration of strikes since the exercise of governmental authority in 1951 is remarkable. In the United States, the only years in which the statistics reveal an average strike duration short enough to approach the New Zealand figures were the war years of 1943, 1944 and 1945, when the exercise of governmental authority was at a maximum and unusual restraints were operative. These included the activities of the War Labour Board, the national wage formula, and the "no strike pledge".

It is probable that the duration of strikes is responsive to the type of labour legislation, the nature of dispute settlement machinery, and the extent to which governmental authority is exercised in labour relations. Each country must decide for itself how large an increase in governmental authority it is willing to tolerate in exchange for how large a reduction in extent of idleness resulting from work stoppages.

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PROFESSOR HANSEN AND THE ECONOMICS OF THE SOVIET CHALLENGE

In the March 1960 issue of *The Record* Professor Alvin H. Hansen expresses his concern about his expectation of the Soviet Union reaching, by 1980, the same G.N.P. as that of the U.S.A. His forecast is based on the "most competent researches".[1] Hansen is inclined to explain the faster annual rate of Soviet progress up to the present solely by the advantages in development of the beginner who can imitate the more advanced and draw on their experience. This, of course, is a fairly conventional argument. Most of its adherents argue that owing to the very nature of its advantage the Soviet growth is likely to slow down in time. Hansen, however, argues that unless the West makes some adaptations to its system the Soviet rate of growth "while not as large as in recent decades will continue to exceed that of the United States".

Since some of the detailed arguments of Professor Hansen about this very important problem appear unconvincing and since he is an eminent and influential economist some discussion[2] of the issues and remedies seemed more than warranted.

More precisely the explanation for the past disparity of growth, given almost solely in terms of the Russians importing the accumulated western technology, appears inadequate. To be sure every country imports foreign technology and it is obvious that the Russians could do that more than some Western countries (e.g. U.S.A., or the U.K.). There are, however, many other Western and non-Western countries who were or are at the same level of technology as the Soviet Union was and yet they do not show the same rates of growth. The general picture given here would be a more balanced one if Hansen had at least hinted at some other factors, some of which would operate only in the early stages of growth (and would not be unique to the Soviet Union) and some which may be operative in the Soviet Union all the time. It seems necessary to mention here that a beginner in development has two powerful purely, or almost purely, *statistical* advantages. In the first instance it is usual in estimating National Income to calcu-

[1] These almost certainly are American. Several of them appeared in the past few years. It is interesting to note that the figures quoted by Hansen are virtually identical to the figures quoted in the *Soviet Handbook 1959-1965* (Soviet Booklet No. 57 London, November 1959). There on p. 19 the figures of "average annual rate of growth of industrial production between 1918-1957 are: U.S.S.R. 10·1 per cent, U.S.A. 3·2 per cent, Great Britain 1·9 per cent, and France 3·2 per cent." It appears somewhat puzzling that the independent American researchers with incomplete information and using in all probability different statistical techniques should get the same result as the Soviet officials.

[2] I am grateful to Dr. K. A. Blakey, Dr. J. W. Nevile, and Mr. P. H. Davies for comments, and especially to Professor J. P. Belshaw and Mr. J. A. Withers for lengthy discussion on and around the topic. They are, however, in no way responsible for errors of commission or omission.

late the value of the market-bound activities only. This means that a great deal of useful economic activity performed in Russia in the 'twenties or the 'thirties by the housewife, the product of which was consumed directly by the family, was excluded. Now this housewife works in a factory for wages and the bread she bakes as an employee is counted, whereas the bread she baked as a housewife was not. Thus some of the advantage is illusory, but not all, because presumably baking the bread in a factory is much more efficient.

Secondly, a country just starting has little capital stock. This means that in the earlier years of the last three decades a given sum of capital investment went in Russia almost entirely to *net* investment whereas in the U.S.A. it had to go in a large proportion merely to replace some worn-out equipment. Thus the beginner shows *in that period* a faster increase in production. It is interesting to mention in this context that the industrial growth of Federal Germany is only very slightly lower than that of the Soviet Union in the period 1950-1957.[3]

It is true, however, that Hansen skipped deliberately over the past and discussed the more important future. It is here that the gravest doubts arise as to the very validity of his arguments, not to speak of their adequacy.

I. *"Full investment"*

Hansen argues that the Soviet Union may have a faster rate of progress in future because its system unlike the Western one

> "permits *in the long run* an overall investment in industry *as a whole* to the point of 'full investment'. This means that investment in plant and equipment can be carried to the full limit of capital productivity, namely to the point at which any further investment (*given the state of technology*)[4] would yield no additional output."

It should be obvious that this statement could be valid only if the Russians had an abundance of capital compared with their needs. Yet this vital assumption is nowhere even mentioned. If capital is not abundant "full investment in industry as a whole" is impossible. Hansen admits that so far there is "a severe capital shortage" which prevents "full investment". Yet he argues that in the future "investment can if the party leaders so decide, be pushed to the point of full investment". The present writer tried very hard to make Hansen's argument plausible and came to the conclusion that there is here a necessity for a miraculous air-lift to match Russia's needs for capital with an abundant stock of capital (in fact a series of air-lifts would be necessary as technology would grow).

The arguments against the possibility of such saturation of the economy with capital seem to be strong, but an attempt will be made to see whether it can be proved. The analysis could proceed here on several lines.

[3] Zbigniew Lewandowicz, "Problemi Economici dell' U.S.S.R.", *Economia Internazionale*, November 1959.

[4] Italics by the present writer.

To begin with, there is the possibility that the Russians might, as an act of policy, limit the wants that would be catered for. Then, given time, they might approach "full investment" in a limited number of industries. This, however, would offend the equi-marginal returns principle and would not maximise the national income. Indeed, this would lead to a waste of resources as the marginal product in the favoured industry would be zero, while the marginal product in the neglected industry would be very high.[5] Hansen, moreover, does not even hint that he would like to argue in this way. Indeed, by his phrase "an overall investment in industry as a whole" he makes impossible even an attempt at this line of argument.

Alternatively, one would have to assume that:

(a) Future capital innovations will be capital-saving[6] (as distinct from labour-saving) and

(b) That such capital-saving effect (if any) will fully offset, and more, the new capital needs arising with growth of human wants.

(c) In respect of Hansen's new argument (which follows under para. II) a third assumption would also be necessary, i.e. that (a) and (b) apply in Russia, but not in the West.

Perhaps someone would argue that capital saturation could be reached in a stagnant, stationary society, but it is difficult to imagine a society that is stagnant in respect of needs and dynamic in respect of growth of capital equipment. Above all, Russia does not appear stagnant nor to be likely to be so in the future. If it were to become stagnant there would be no challenge and no point to Hansen's article.

The argument against the possibility of an abundance of capital can be empirical or a priori. In the first instance, in the very long history of mankind we have had all sorts of societies, ascetic and hedonistic, dynamic and stagnant, collectivistic or individualistic, yet capital has always been scarce. On a priori grounds there is no doubt that capital in future will grow, possibly very quickly, but unfortunately the needs for capital are likely to grow at least as fast. As soon as a gadget or a product appears we find many new uses for it (with or without modification). It seems hardly conceivable that capital stock would grow without a growth of technology and that technology would not open vistas of new products or services each of which would create fresh demand for capital.

The assumption then of an abundance of capital is extremely unrealistic. Anybody who postulates such an unrealistic assumption explicitly or implicitly ought to provide some reasons for it. Hansen does not provide a shadow of evidence in this respect, indeed appears unaware of making this assumption. Thus the argument must be

[5] There would also be an analogous effect in the field of marginal utilities, which would affect prices and thereby the G.N.P.

[6] J. A. Schumpeter discusses the possibility of capital saturation and also this aspect but comes to negative conclusions, *Business Cycles* (McGraw-Hill Book Company, New York-London, 1939), p. 1034.

faulty[7] in its very essence, or at least is entirely unproven. But even on his own assessment of the nature of the problem, Hansen's policy prescription for pushing investment in the U.S.A. further is dubious. He suggests that investment cannot be pushed far enough in the United States, because interest rates are not low enough. Apart altogether from the uncertain effects of interest rates on investment, interest rates (if one takes into account the steady increases in prices) are already, in real terms, low and may sometimes be negative. In conditions of full employment there are a tremendous number of people who would pay the ruling rates of interest if only they could get hold of any loan capital.

II. *Obsolescence Policy*

(a) Hansen further argues that American growth is hindered by the usual method of dealing with obsolescence. He starts with the statement that under the capitalist system new technology will not be introduced *merely* because it is *technically* more efficient than the old one and argues that the switch-over to the new technology should be made irrespective of the total real costs of doing so. Hansen then proceeds to say (without supplying any proof) that the latter is the Soviet practice[8] and a source of their success. But surely whether it is a Western monopolist or a Soviet planner who is making the decision, when a new technology appears the rational thing to do is to calculate the cost of the adoption of the new technology. One has to estimate here the remaining working life of the old capital asset. Say this is ten years. Then one has to estimate how much dearer in respect of labour, power, or raw materials the old technique would be over that period of ten years than the new technique. This extra cost X of labour, power, or raw materials has to be compared with the extra cost of labour needed to produce the new machine, more precisely that part of the new machine which would have to be depreciated in ten years. Let us call that cost Y. A rational capitalist monopolist would be under the same logical compulsion as a rational Soviet planner to scrap the old equipment if the extra cost X of working the old machine were greater than Y, and conversely. The West and the Russians have electronic brains, which could do many jobs better than human beings do with the present equipment. Does this necessarily mean that bus drivers should be replaced by an electronic brain irrespective of cost

[7] The reasons for falling into a trap like this might be as follows. It is usual to talk of full employment, which has some meaning. Some writers, e.g. Hutt, have spoken of full employment of resources (which is erroneous, because owing to our ignorance we never utilise our resources fully). Hansen's preoccupation with the Soviet stress on capital formation gave his idea of "investing more fully" some treacherous attraction. In addition Hansen's argument was constructed with one leg in the realm of "long run" analysis, which allows him to argue the growth of capital stock, and the other leg in the other world of "short run", which allows him to keep technology and needs constant.

[8] A. Erlich argues in *Soviet Economic Growth*, edited by Abram Bergson (Row, Peterson & Co., Evanston, III.), that in fact the opposite is the case. Erlich quotes as his authorities two Soviet economists, A. Notkin and A. Arakelian.

in terms of labour and resources? Productivity (in any economic system whatever) requires that a planner should save labour, power, and materials in the *whole economy and not just in one sector*. In this case a small saving of the labour of bus drivers would involve incomparably much greater waste of labour and capital in the electronic goods industry.

(b) As a matter of fact, to the extent that some forms of competition still exist in the West, it can be argued that the replacement of obsolete capital takes place faster in the West than in the Soviet Union. Hansen appears to think in black and white terms here. The past is depicted as one of ruthless competition and the present completely without it. Though the competition of to-day is not that of perfect competition of the textbook, though there is not much price competition (there is a threat of it) there is the powerful threat of the new product, and the competition of the firm from another industry, or just the fear of what the rival oligopolist firms are doing. There are many industries, indeed all the industries supplying durable consumer goods, e.g. the car industry, where obsolescence is rapid and innovation of the process or the product excessively rapid. Here all firms spy on one another and as soon as one plans to introduce a new product or a new process the others try to beat him to it. Indeed, as Galbraith argues: "In industries where firms are few and comparatively large—oil, metallurgy, cars, chemicals, rubber, heavy engineering—the investment in technological advance is considerable."[9]

(c) Briefly, Hansen has not established that the Western obsolescence policy is wrong, nor that the Soviet obsolescence policy is different, and it would follow that his prescribed medicine would be irrelevant to the real situation. But even for the problem as seen by Hansen the advice is strange. What he recommends is accelerated depreciation allowances cyclically adjusted. Now this might or might not help the problem of stabilisation much. But how would it speed up replacement over the whole period of the downswing and the upswing? What one would gain on the swings one would lose on the roundabouts. While some producer would find benefits in installing new capital equipment during the phase of the accelerated depreciation allowances of the downswing, this would be offset by the postponement of replacements during the upswing when the privilege would be withdrawn (by Hansen). The producers would wait then until later when accelerated depreciation allowances are restored. But even on this very narrow issue of the effect of accelerated depreciation allowances Hansen takes too much for granted. The stimulating effect during the downswing is fully dependent on there being no income tax increase after the period of the accelerated depreciation ends. If the period of the accelerated depreciation is, say, 3 or 4 years, some time early in the subsequent 6 or 7 years the downswing phase might be replaced by the upswing (to the extent that this and other policies were successful) and the ex-

[9] *The Affluent Society*, (Hamish Hamilton, London), p. 99.

cessive growth of the upswing would presumably soon have to be checked both by removal of the accelerated depreciation allowance and by a very probable increase in income tax. (Hansen could not fight inflation by credit squeeze because he insists on lower rates of interest.) In effect then, the firm would have shifted a substantial part of its income from the low tax years into the high tax years, and the "interest-free loans from the government" would then prove to have high interest charges. Thus the stimulating effect would seem to be most uncertain.

It would be much simpler, if it were desired to speed up innovations, for the government to organise research for all the industries where the representative firm is too small to finance its own. This would speed up innovations where they are sluggish and leave unaffected the industries where the stimulus is unwanted. Galbraith gives convincing arguments to prove that innovation is very unevenly[10] supported in various industries.

III. *Should investment be self-liquidating?*

Hansen is right when he argues that when approaching an investment decision the government should consider not only the direct returns, but also the more remote indirect ones. The argument used to justify investments even if they are not self-liquidating is based on the "social" external economies. This argument has been recognised since at least the time of Adam Smith.[11] The newer factor that Hansen introduces here is the conventional argument that the United States public authorities, by ignoring the external economies, have not carried public investment far enough. That may well be true. But if Hansen continues to argue that this explains the faster Soviet growth two points may be brought out. Firstly, other Western governments e.g. British, French or Australian, are probably not guilty of that mistake, and yet the performance of their economies is not better, in fact that of Great Britain is much worse. Secondly, the Russians themselves may be making the opposite error of not carrying investment far enough in the field of light industry, i.e. consumer goods industries. Surely external economies can arise in either field. Moreover it could be argued with considerable justification that the social external economies of any given project are much less in a highly developed economy like that of the U.S.A. than in a relatively underdeveloped one as the Soviet Union was in the early stages of her growth. After all, if one or two big public projects were not carried out in the U.S.A. the external economies lost would not be very great—some land would not be irrigated, but the U.S. has an excess of agricultural products. Perhaps some skilled labour (skilled in public works) has not been developed, but other skill has been gained (in private industry). Perhaps some knowledge or experience has not been gained, but other offsetting know-how must have been acquired. But the same could not

[10] *Ibid.*

[11] Cf. *The Wealth of Nations*, p. 681, (The Modern Library, New York, 1937).

be argued in an underdeveloped economy, where an excessive development of "natural resources" producing some asset does not add perhaps so much skill or useful experience as could have been gained in industry.

Perhaps Hansen could make out some argument here on the lines of external diseconomies of private enterprise, but he does not even hint at that. Moreover if he did, the question would come up whether there do not arise external diseconomies as a result of governmental actions, some institutions or even the very size of government machine under certain circumstances.

There is also the additional point, that Hansen is somewhat vague on this paragraph. When he suggests that investment in "natural resources" need not be self-liquidating, what exactly does he mean? Does he mean that an investment in, for example, a coal-mine in an advanced country need not be self-liquidating? This ambiguity, together with the general suggestion of the whole article that capital is a free good, could easily lead an unwary reader to think that insisting on self-liquidating even in the wide sense does not matter.

IV. *How much investment?*

Hansen gives here a conventional argument that communist countries devote a much larger proportion of their national income to investment than capitalist countries do. Indeed throughout his whole article the volume of investment is taken as virtually the sole cause of economic growth and increasing investment is virtually the sole prescription. It is true, of course, that in this error he is not quite alone. Since the growth of the popularity of the so-called "production functions", some writers have come to believe that there is some rigid dependence of output and productivity on the capital stock. Those writers seem to be blind to the fact that whether one takes business in New York or Sydney, the most profitable firms and the firms growing fastest are often not highly capitalised. If this mechanical dependence of output on capital stock does not apply in the same cultural and social *milieu,* why should it apply in vastly differing environments? Even in the same country and the same industry a massive application of capital does not necessarily increase physical productivity of labour, as is clearly shown, for example, in the well known Reid Report on the British coal industry. Again on what grounds did Hansen reach the view that the Soviet Union puts a higher proportion of G.N.P. into capital formation than the U.S.A. or Australia? Further even if the Soviet Union did so, and if quantity or growth of capital were such an all-important factor, is it not the case that the average worker in the Soviet Union is still aided by a great deal less capital equipment than the worker in the U.S.A. and that the current *absolute* per capita addition to the equipment of the Soviet worker may well be much less than the addition enjoyed by the American worker?

It is true that statistics on capital formation as a percentage of G.N.P. leave much to be desired, but presumably if Hansen did look

for any factual support he would have to consider such statistics as are available. Here are some estimates:

SOVIET GROSS INVESTMENT AS A PERCENTAGE OF G.N.P.

	Estimate of Bergson* "established prices"	Estimate Bergson "adjusted prices"	Kaplan's Estimate**
1937 ..	19·2	22·9	15·9
1940 ..	13·7	16·6	13·3
1944 ..	11·5	13·5	9·2
1948 ..	18·5	25·6	17·2

* Abram Bergson and H. Heymann, *Soviet National Income and Product 1940-48* (Columbia University Press, New York 1954).
** *Soviet Economic Growth*, edited by A. Bergson (Evanston, Ill., 1953).

Kaplan argues that the proportion of G.N.P. invested in the Soviet Union greatly resembles the U.S. investment rates for the last eighty years. Yet the U.S. did not show anywhere nearly so high rates of growth of G.N.P. as Hansen's Soviet figures. In the period 1949/50-1958/9, Australia's total Gross Capital Formation amounted to 28 per cent of G.N.P. or, if cars are excluded, 25 per cent. Yet Australia's G.N.P. grew by post-war standards at the quite moderate rate of about half that of Japan (sometimes much slower than that; the exact figure greatly depends on the period chosen). Among the countries that easily exceed the economic growth of Australia are Federal Germany, Austria, Communist China, Nationalist China, Philippines, Japan,[12] and probably there are quite a number of others.

[12] *U.N. Economic Survey of Asia and the Far East* 1957, (Bangkok 1958).

It could be argued that it is the rate of investment and the rate of growth of population in conjunction with the abundance or paucity of natural resources that affect the rate of growth of G.N.P. If that were the case Australia should definitely have one of the fastest rates of growth in the world and Japan one of the slowest. Japan's recent rate of investment is similar to that of Australia (in earlier periods it was much lower) and while in the period 1953-58 the number of people in employment increased in Japan by 10 per cent, it increased in Australia by 13 per cent! Further, it cannot be argued that the natural resources of Japan are rich but in the words of U.N. Economic Survey of Asia and the Far East 1957 the growth of real income in Japan "... in recent years has been at the rate of 10 per cent per annum ... by far the highest increases among industrial nations. In 1956 industrial production had risen by 23 per cent over the previous year."[13]

Nor can it be argued that the fast growth of Japan's G.N.P. can be explained by the advantages of the beginner as Japan, though poor,

[13] Nor was that year exceptional as, between 1954 and 1959, Japan's industrial production doubled. *U.N. Economic Survey of Asia and the Far East* 1959, (Bangkok 1960).

is now a highly developed country. In fact, contrary to such an argument, now that she has presumably exhausted the advantages of the beginner, she has shown a dramatic *acceleration* from the pre-war annual rate of growth which used to be approximately 4 per cent. Neither is this fast post-war growth a result of starting from a low base existing at the end of the war, as Japan's recovery was completed by 1950 or 1951[14] and the rates quoted apply to the subsequent period.

Briefly, if Hansen was searching for some simple secret of growth he should have given more consideration to the conditions of growth in the Soviet Union and at least some to the remarkable case of Japan.

V. *The pattern of investment*

It might, perhaps, be argued that the pattern of investment, i.e. its distribution between industrial investment and durable consumer goods, is significantly different in the countries discussed. There are some differences to be found, though for some countries the breakdown of capital formation is incomplete or not available. Figures available are:

PERCENTAGES OF GROSS CAPITAL INVESTMENT IN THE U.S.S.R.[15] AND AUSTRALIA[16] MADE IN VARIOUS FIELDS

	U.S.S.R. Seven Year Plan 1952-8	U.S.S.R. Seven Year Plan 1959-65	Australia 1958/9
Industry incl. agriculture	76·6	76·7	66·5
Motor cars	—	—	10·4
Housing and Public Facilities	19·4	19·3	20·0
Education and Public Health	4·0	4·0	3·0

A rough calculation made out for New Zealand also shows a lower proportion of total investment made in the industrial field.

There is of course a possibility that some of the Australian industrial investment is in the wrong sector (e.g. too much in manufacturing and not enough in mineral extraction). But it is impossible to make a statistical comparison of the extent of mal-investment in various countries.

In the case of Japan the U.N. statistics[17] single out from the total capital formation only the expenditure on dwellings. There only about 7 per cent of the total capital formation is spent on housing

[14] Cf. G. C. Allen, *Japan's Economic Recovery*, (O.U.P., 1958), p. 21; also *U.N. Economic Survey of Asia and the Far East* 1957, p. 45, (Bangkok 1958).

[15] Absolute figures taken from *Soviet Handbook 1959-65. Statistics and Data Relating to the Seven Year Plan.* (Soviet Booklet No. 57, London, November 1959), p. 52.

[16] *National Income and Expenditure of Australia 1959.* Government Printer, Canberra.

[17] *U.N. Economic Survey of Asia and the Far East 1959.* (Bangkok 1960).

against Australia's 15 per cent. Nevertheless Australia's capital formation is so large that these differences should not invalidate the view that differences in the rate of growth do not depend on the rate of industrial investment in any simple and mechanical fashion. Further evidence in support of this view is supplied by the U.N. statistics[18] of Net National Income growth in the period of 1952-6 and the Gross Fixed Capital Formation for such countries as, for instance, Philippines, Communist China and Nationalist China. All of these have a much lower rate of investment and a faster rate of growth of national income than Australia.

VI. *Excess capacity, the Soviet stress on capital goods industries, and the concept of national income*

(1) There are strong reasons for thinking that the Soviet Union uses at all times such capital equipment as it has to a fuller extent than the West does.

It is generally known that the Western type of economy has considerable excess capacity in depressions. What is much less well known is that countries like the U.S.A., Australia, or New Zealand have considerable excess capacity in some sectors even in boom periods.[19] The fact that there is in boom periods a large number of unfilled *immediate* vacancies is itself suggestive that there must be some excess capacity in capital generally. In addition certain specific industries have been run in the best post-war years only at a fraction of their capacity.

Even in normal times excess capacity is likely to arise because of:

(a) Mistakes in the assessment of the market for goods and labour by individual producers in the West and by the planners in the Soviet Union.

(b) Sudden and dramatic changes in the Government policies in the matter of import controls, exchange controls, various qualitative credit controls, hire-purchase restrictions, indirect tax changes, etc. All of these policy changes aim at various objectives with a considerable disregard of their effects on the pattern of investment and the problem of capacity utilisation.

(c) Capricious behaviour of the "spoilt" consumer in the Western society, and his effective insistence on a high degree of choice, which can be purchased only at the expense of a more or less permanent excess capacity and the holding of very large stocks, all of which reduce our overall average return on capital invested.

[18] *U.N. Economic Survey of Asia and the Far East 1958.* (Bangkok 1959).

[19] In the U.S.A. in December 1956 capital was utilised at no more than 91 per cent and in August 1957 at no more than 88 per cent. Both estimates are claimed to have been made in the most conservative fashion and both in periods of prosperity. Calvin B. Hoover, "Employment Growth and Price Levels", *Quarterly Journal of Economics,* August, 1960.

(d) Fluctuations in the foreign sector. These affect all countries but not in an equal degree and not in the same fashion.

(e) Monopolistic organisations, especially of the cartel type common in Australia, have, as is well known, a strong tendency to create permanent excess capacity.

(2) Of the above five factors only the first two are equally liable to occur in the Soviet Union. If they produce in the West a sectoral excess capacity this may prove either permanent or fairly long-lived. In the Soviet Union such errors can be more readily and more quickly eliminated and at a lesser cost in terms of the accepted statistical G.N.P. growth measurement. The Soviet Union can eliminate excess capacity very quickly because:

(a) If Russia tends to have a faster growth (for other reasons which will be argued later) then a faster growth of demand for goods generally will eliminate the excess capacity more quickly.

(b) The consumer goods industry is kept in the Soviet Union at such a capacity compared with the potential demand that an excess capacity is almost unthinkable.

(c) The Soviet Union is aided by the fact that it strongly favours investment in the capital goods industries compared with investment in consumer goods industries. It is still true, of course, that a particular capital goods industry could develop an excess capacity. But as the capital equipment in many capital goods industries is relatively unspecific (compared with that of the consumer goods industries) it can often be easily switched to other production. Although the capital equipment in *some* capital goods industries is highly specific (e.g. in a coal mine, electric power plant, water control installations, etc.) their *product* may be relatively unspecific and therefore excess production may be used up easily in practically any industry (provided that the economy is as the Soviet one always tight-stretched, with a repressed inflation). For the rest if the Soviet planner should still face an excess capacity, he could easily switch resources to some sort of sputnik (not that it is argued that this need has arisen).

In addition, to the extent that the Soviet economy develops something like an excess capacity in an industry producing capital goods the planners can easily eliminate that excess capacity by a small alteration in the plan and by putting a bigger supply of some product on the consumer market, which will gratefully take it up even if the price is not reduced (and the price if necessary may be reduced by a reduction of the turn-over tax). Alternatively the product in excess supply can be sold to the Ministry of Foreign Trade. Lavishing resources on the base of the economy, that is on the capital goods industries, has at this level the advantage that the products are undifferentiated: they

can equally well be used by the capital goods industries as by the consumer goods industries.

As a result of these features of the Soviet economy, if the planners make a mistake it is easily corrected. One is tempted to say that the Soviet planner in a sense "cannot do wrong"! Such investment as he has determined will be fully utilised and the product sold at a price he determines. Then the estimator of the G.N.P. takes the total output at the planner's prices, or his own country's prices, and says that the G.N.P. of the Soviet Union rose so much. This situation may, however, co-exist with a severe shortage of, say, shaving blades where the planner did not provide sufficiently, and an excess of books where he may have over-provided.

(3) If free market consumer valuation of G.N.P. were available this sort of discrepancy would force the G.N.P. down, but if a free market does not exist whose prices should be used? Some writers have chosen the Soviet planners' prices either of the early period or some later period, or the prices ruling in a particular year in some other country. Each set of prices, whether that of a different year or a different country gave a *completely different* rate of growth.[20] None of them could reflect the true consumer's valuation otherwise than by an unlikely accident. National income and its growth are essentially welfare concepts. Since inter-personal comparisons of utility are impossible, since the consumer's valuations change all the time (which brings an insoluble index number problem) and since even such changing consumer valuations are distorted in the West by monopoly elements and are smothered by the planners' preferences in the Soviet Union, there arises the problem of what value, if any, we should put on national income statistics.[21]

VII. *Some of the possible causes of the faster growth of G.N.P. in the Soviet Union*

The present knowledge of the mechanism of economic growth is still so inadequate and the factors facilitating growth are so numerous, complex and often intangible, that not only would the monistic diagnosis of Hansen be insufficient, but the following list of probable factors may well be incomplete. The present writer thinks that the faster Soviet growth is at least in part explained by the following:

(1) Different attitudes of labour and management to effort in a country that has already "arrived" and in a country that is passionately trying to catch up.

(2) The present unsatisfactory patent arrangements in the West which lead to a vast multiplication of costly research effort

[20] See *Soviet Economic Growth*, edited by A. Bergson (Row, Peterson & Co., Evanston, Ill.).

[21] This article was written sometime in May 1960, the final draft was written in October and sent to the Editor at the beginning of November 1960. Since the time of writing it K. Polanyi developed, independently of course, a somewhat similar idea in the Oct.-Dec. issue of the Soviet Studies quarterly.

and restrict the use of latest inventions, whereas in the Soviet Union any invention is shared out with all the other enterprises. In addition the Soviet Union has a system of bilateral agreements with the other Communist countries providing for free mutual exchange of inventions, information, plans and specifications.

(3) The Soviet Union uses material incentives to a similar extent as the West and in addition makes incomparably greater use than the West of moral and social incentives, conferring recognition and distinction for effort on worker or manager.

(4) The Soviet Union uses piece work and shift work more than the West.

(5) The U.S.A. while talking in general terms of increasing growth, is actually making no mean effort and this at very high cost, to discourage growth of output and indeed to reduce output in an important sector of its economy, namely agriculture—precisely the opposite to what Khrushchev is doing.

(6) The Soviet Union places greater emphasis on education, especially in technology. Various kinds of truth are not all equally worth knowing, and from the point of view of G.N.P. growth especially they are not equally useful. The Soviet Union in conformity with its materialistic outlook places great stress on education and research in the severely practical and useful.

(7) The U.S.A. has been for some time withdrawing its main effort, in terms of manpower, from production of goods to the production of services. In the post-war period about 80 per cent of the net addition to the labour force in the U.S.A. went into the tertiary sector.[22] Such a trend has not yet manifested itself in the Soviet Union. Since services invariably show much slower growth of productivity than secondary industry such a disparity would affect the growth of G.N.P.

(8) The Soviet Union makes much greater use of women's contribution to the market-bound national effort. Because of our prejudices, our values, and our way of living we produce our "national income" with only a small contribution from women. In fact in the intellectual field we have managed very successfully to prevent women from contributing.

VIII. *Conclusions*

Should we invest more? Hansen appears to have no doubt at all that we should. All he worries about is the method of bringing about higher investment. Quite apart from the fact that his methods of increasing investment are dubious, there arise three hurdles.

[22] *U.N. Economic Survey of Asia and the Far East 1957*, Bangkok.

(a) There is serious doubt whether an increased investment would increase the growth of G.N.P. significantly.

(b) There is also the question whether, in the conditions of the U.S.A. or of Australia, an increase in output (if so badly desired) could not be obtained more economically by other sacrifices preferable to the community.

(c) Finally why should we make any very heavy sacrifices to-day so that we should be so very rich to-morrow? Is it not the case that the U.S.A. and Australia belong to the very rich countries? After all the U.S.A. is not trying to make up leeway in her per capita income as is the U.S.S.R. Surely provided that there is *some* growth, provided, that is, that our children shall be somewhat richer than we are, there is no superior moral, economic or welfare virtue in high consumption to-morrow instead of consumption to-day.

It is true that the Soviet Union has been making great sacrifices in the past and is making them now because it wants to catch up on the U.S.A. But if we push up our sacrifices for the sake of faster and faster growth and keep on at it, when, if ever, are we going to stop, or to slow down? If we keep on making great sacrifices for the sake of future for ever, we would be in effect building pyramids. If at a distant time we slow down sacrifices to enjoy very high consumption, such a sudden switch would lower the utility of the total product over the whole period of the very lean and the very fat years, in a similar way as it is argued that gambling does.

Hansen's concern here must have arisen either because he fears that divergent rates of growth would produce an unfavourable change in the balance of military power, or an unfavourable psychological impact on the third countries. Galbraith[23] gives a brilliant argument that future war could not ". . . even remotely be called a G.N.P. war . . .", which presumably means, that within a range of differences of G.N.P., the total productive power in itself is entirely irrelevant to military power nowadays. The dilemma facing the West arises then from the fact that the western opulence does not endear the West to the undeveloped (and uncommitted) nations, who rather may be presumed to be strongly attracted to him who shows faster rates of growth. Thus we may be forced into lower consumption and greater sacrifices merely to prove ourselves and our system to the uncommitted nations.

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[23] J. K. Galbraith, *The Affluent Society*, (Hamish Hamilton, London).

A THEORY OF THE GROWTH OF THE FIRM

An analysis of the growth of the industrial firm based upon the results of empirical research can have an important bearing upon several different branches of economic theory. Such an analysis might indicate the relative importance of the factors influencing the investment decisions of firms and thus contribute to a clearer understanding of the processes of capital formation in the private sector of the economy. Moreover the manner in which industrial firms adapt their capacity to changes in market demand is of crucial significance when considering the dynamic aspects of price and output policy in industrial markets. Again it may be useful to study the relative rates of growth of different groups of firms in order to gain an insight into the process of industrial concentration.

It is therefore of considerable interest that Dr. Edith Penrose in a recent book[1] has put forward a number of hypotheses concerning the growth of firms for which she claims a *prima facie* case based upon the available published evidence and her own observations. These hypotheses form the basis of a semi-formal model of growth which is used to derive the following major conclusions—

(1) While there are limits to the *rate* at which a firm can grow in any given period of time, it does not appear that there is any maximum or "optimum" size of the firm beyond which "diseconomies of size" will arise.

(2) After a certain point the large industrial firms will nevertheless experience a reduction in their rate of growth, with the result that in an expanding economy, the extent of industrial concentration will not continue to increase and eventually will probably decline.

The basis for these conclusions is examined in more detail below, but we should mention at this stage that the value of Mrs. Penrose's book is not entirely dependent upon one's view about these results. There is a great deal in the work which will be of interest to both professional economists and undergraduates. The manner of presentation is stimulating and provocative.

The book can be regarded as falling into three parts. In Chapters I to VI Mrs. Penrose outlines the "basic theory", examining the factors which contribute to the growth of the firm with emphasis on the internal resources inducing (and limiting) expansion. In Chapters VII and VIII the process of growth by diversification or by merger is considered. In the final part of the study, comprising Chapters IX to XI the discussion is extended to examine the relative rates of

[1] *The Theory of the Growth of the Firm.* (Basil Blackwell, Oxford, 1959.) Pp. viii + 272. 55/6 Aust. References to this book in this paper will be shown by the page number only.

growth of large and small firms and the implications of this for the process of business concentration.

I

Mrs. Penrose is concerned with explaining the processes of growth only in "those firms that do grow". But there is a basic presumption that most firms are anxious to expand in pursuit of long-run profits. Thus "it seems reasonable therefore to assume that in general the financial and investment decisions of firms are controlled by a desire to increase total long-run profits. Total profits will increase with every increment of investment that yields a positive return, regardless of what happens to the marginal *rate of* return on investment, and firms will want to expand as fast as they can take advantage of opportunities for expansion that they consider profitable."[2]

It is notoriously difficult to discover whether the true objective of business firms is to maximise long-run profits, but at least it is often possible to show whether given policies with regard to investment or pricing are likely to be consistent with profit maximisation. In the present case we are inclined to question the presumption in the passage quoted above that rapid expansion without regard to the rate of return on additional investment is likely to give the largest increase in total long-run profits. Moreover the available empirical evidence does not seem to support the view that industrial firms actually behave in the manner suggested by Mrs. Penrose, even though an explicit calculation of the rate of return may not be made for each (or any) investment project undertaken by particular firms.

On the theoretical plane we assume that at a moment of time a firm will select from the possible investment projects which can be attempted with the available resources, that project (or combination of projects) which offers the highest expected return. But if the selected project involves investment in fixed assets which are specific and are not readily marketable, it may be wise to postpone the commitment of funds altogether. At some later date there is the possibility of investment at a higher expected rate of return, and since the availability of resources is likely to be greater (both financial resources from undistributed profits and managerial resources released from the planning of earlier investment projects) projects requiring a greater capital outlay become possible. It is of course an extremely difficult problem to decide the most profitable time pattern for investment when the gestation period, expected rates of return, and size of capital outlay of future alternative capital projects are unknown or at best are vague forecasts. However it seems that the individual firm would be unwise to invest funds on capital expansion as soon as a profitable opportunity presents itself, for this in general would lead to undue weight being placed on small projects, which while they may offer a satisfactory return on capital invested, are costly in the use of

[2] P. 29.

entrepreneurial and managerial resources, and will thus preclude the possibility of a larger global investment programme over time.

It is doubtful whether a firm seeking to maximise long-run profits should invest in fixed assets when the expected rate of return is very low or is significantly lower than the current average return on invested funds. For the small private or proprietary concern heavily reliant on undistributed profits for the financing of the enterprise, such a policy might endanger the supply of funds for working capital. But even for the public company we are not entirely convinced that the rate of return on a new project can be allowed to fall very low on the grounds that, whatever the outcome, the rate of dividend being paid to shareholders cannot be endangered. This assumes that the availability of equity capital is related only to the dividend or to factors outside the company's control (e.g., monetary policy). But as Kaldor has suggested[3] it may be that in the long-run the *earnings yield* on the company's shares represents the yard-stick with which the return on investible funds must be compared. If this is correct then availability of equity capital is affected to some degree by the highly sensitive movements in the price of company's shares and not by the stable rate of dividend alone.

The evidence of how businessmen actually arrive at their investment decisions is unfortunately very limited. Most of the evidence relates to the very large enterprises, and among this group there are a number of firms who apparently will not undertake a new investment project unless a certain minimum rate of return is expected. For example, Mr. Roger Blough, the President of United States Steel, suggests that his Corporation aims at a general target of about 8 per cent after taxes on stockholders' investments plus long-term debt.[4] In addition Professor Lanzilotti has suggested[5] that many of the large firms investigated by him and his collaborators[6] aim at a minimum or "target" rate of return "especially on new projects." One of the most careful studies on this subject by Professors Carter and Williams[7] shows that, among the sample of firms in British industry for which they collected evidence, a comparatively small proportion made an explicit calculation of the prospective yield of each investment project. The proportion was apparently higher among those firms pursuing an active expansion policy. It seems clear however that many firms were reluctant to carry out investment projects in which the "pay-off period" was in excess of 10 years (the expected rate of return below 10 per cent) though attitudes varied greatly from industry to industry.

[3] *An Expenditure Tax,* (Allen and Unwin), pp. 127-128 and p. 167.

[4] Administered Prices: Hearings before the Sub-Committee on Anti-trust and Monopoly, Part 2: Steel, 1957.

[5] "Pricing Objectives of Large Companies," *American Economic Review,* December, 1958.

[6] Kaplan, Dirlam and Lanzilotti, *Pricing in Big Business,* (The Brookings Institution, 1958).

[7] *Investment in Innovation,* (Oxford University Press, 1958).

This empirical evidence cannot be regarded as conclusive, but we would suggest that if the typical firm does in fact limit its investment projects to those offering a high prospective return, and in so doing forgoes some profitable opportunities, this conduct may still be regarded as consistent with the aim of maximising long-run profit or attaining the highest rate of long-run growth. The firm following Mrs. Penrose's suggested line of action reminds one of the hare in the fable of the tortoise and the hare. Maybe the tortoise will win the long-run competitive race after all.

Mrs. Penrose does not explore the implications of the hypothesis we have discussed in relation to the processes of capital formation in the economy as a whole. These implications would therefore carry us beyond the scope of the present study but, in passing, it may be noted that if many firms are as anxious to expand as she suggests, the rate of investment would probably fluctuate far less over time than has generally been revealed by studies of the business cycle.

In the preceding remarks we implicitly assumed that there was a unique rate of return expected throughout the economic life of any particular capital asset. There is greater likelihood of this expected return lying within a certain range with values near the middle of the range being regarded as more probable than values at either end. Moreover the return is unlikely to be constant over the estimated life but will probably be expected to fall in the later years as a result of technical change and the introduction of new products.

There are other aspects to the problem of calculating the expected rate of return, to which attention has been drawn in an important recent article by Erik Lundberg.[8] By failing to allow for the interdependence of capital assets businessmen may tend to over-estimate the overall rate of return which may be expected from given investment outlays. For example, the provision of additional storage space for raw materials in the factory may enable an industrial firm appreciably to increase its rate of output provided that spare capacity is available in the buildings and machinery which make up the remaining capital equipment in the productive process. The apparent rate of return on the additional investment in storage space can be extremely high in these circumstances, but looking at the plant as a whole the overall profitability is seen to be markedly lower.

A second difficulty may arise if the firm actually achieves (initially at least) the high rate of return which was forecast for a particular project. The resultant increase in labour productivity will often bring about demands for higher money wages which if granted (and they may be difficult to refuse) must adversely affect the profitability of the new venture. Here again management may fail to allow for the increase in wage costs (or other factor costs) in computing the expected rate of return.

[8] E. Lundberg, "The Profitability of Investment", *Economic Journal*, December 1959; Vol. LXIX, No. 276; pp. 653-677.

After examining the evidence Lundberg asks "Is it not an essential part of the vitality and attractiveness of the capitalistic system that ex ante profitability of investment is expected to be high and promising while ex post returns when looking back at past capital costs seem to be sadly low?"[9] This view seems to provide an interesting alternative hypothesis to explain why firms have an incentive to expand.

II

Turning from the basic postulate that firms by and large attempt to expand to the factors which may limit or induce their expansion, we find that Mrs. Penrose lays great emphasis on the role of management. "In all of the discussion the emphasis is on the internal resources of the firm—on the productive resources available to a firm from its own resources, particularly the productive services available from management with experience within the firm,"[10] and later "while external inducements and difficulties have been widely discussed, little attention has been paid, in a systematic way at least, to the equally important internal influences on the direction of expansion."[11]

It is argued that enterprising management is a necessary condition for growth. Other "internal" factors which might limit absolute expansion such as the availability of finance and risk and uncertainty are held to be of less significance than management. For in general the problems arising from uncertainty can be overcome at a certain cost in terms of additional managerial resources, while "there is a relation between entrepreneurial ability and the finance a firm can attract". Mrs. Penrose also explains the *rate* of growth of the firm largely by the speed with which new tasks are assimilated by the firm's management. There is no real escape from this constraint by additional recruitment to management. For the existing management limits the amount of expansion which can be planned in any future period, while the amount of planned expansion in turn limits the number of new personnel that can be profitably employed.

This emphasis on the role of management is no doubt a salutary reminder to those who sometimes tend to forget the heterogeneity of business firms and who customarily think of the expansion of the firm solely in terms of the increase in the output of a single product for a given market. Nevertheless it is surprising that, in a book which aims at establishing a "general theory of the growth of firms", there is very little reference to the influence of market structure upon the firm's investment decisions and on its rate of expansion.[12] Perhaps this arises because Mrs. Penrose seems most interested in the very large and successful industrial firms which "are heavily diversified, producing

[9] *Op. cit.*, p. 676.
[10] P. 5.
[11] P. 66.
[12] The effect of competition upon the direction of the firm's expansion is discussed very briefly in connection with diversification. See Chapter VII—The Economics of Diversification.

many products, extensively integrated, and apparently . . . always eager to take on more products". For such a firm it is clear that opportunities for expansion are not limited to a few markets, and growth is not likely to be seriously impaired by cut-throat competition in any one. But these giant concerns are not typical industrial firms, and the great majority of firms rely a good deal on one market.[13] This is true of course of the smaller and medium-sized concerns, but it is also true of many large firms manufacturing a wide range of products for a number of markets. For example, some of the principal manufacturers in the Australian motor-car industry are responsible for the production of such goods as refrigerators, air-conditioning equipment, trucks and lorries but the overall rate of expansion of these firms is geared to the demand for private motor-vehicles and the share of that market which each enterprise can command. This will be the more evident the greater the reliance on undistributed profits as a source of funds for expansion.

Although very little research has been carried out on this aspect, it seems evident that the nature of competition and market structure are of considerable significance in determining a firm's investment decisions and its long-run rate of growth. For example in an oligopolistic industry where the firms act independently in planning their investment,[14] the rate of expansion of the individual enterprises may, even in the long-run, exceed the rate of increase of sales of the principal products. This situation is reflected sometimes in increasing concentration, but more often in extensive forward and backward integration.[15]

Where a different competitive situation exists, on the other hand, the compelling force towards expansion is far less noticeable. A firm which is in a dominant position in that market which takes a very high proportion of its total sales, may not wish to expand its overall activities any faster than the rate of increase in the size of its principal market—always provided that that market *is* expanding.[16]

[13] A view expressed by Jack Downie in *The Competitive Process* (Duckworth, 1958) in relation to the industrial structure in the United Kingdom: "I conclude therefore, that there is justification for assuming, as I have throughout this book, that the typical firm is engaged in one industry only and that its history depends on its behaviour in that line of business and that of other firms which, in the main, will also be engaged in that line of business only."

[14] One often sees remarks to the effect that where oligopolists are acting in collusion in determining their price and output policies the industry may to all intents and purposes be treated as a monopoly. It is worth emphasing that this procedure may lead to serious error when one is interested in investment decisions or in the long-run impact of investment decisions upon price and output.

[15] In Australia, over the last two years or so, this has been evident in the backward integration by the principal manufacturers of ready-mixed concrete and other concrete products, and the forward integration into distribution by the principal manufacturers of rubber tyres.

[16] Naturally factors beside market structure intrude—Professor Williams has suggested that major changes in technology often cause the efficient firms to expand ahead of the total market, even though at other times their expansion is at the same rate as the market. "Some Conditions of Useful Competition", *Yorkshire Bulletin of Economic and Social Research*, December, 1959.

These remarks do not invalidate the conclusion which Mrs. Penrose derives from her analysis of the possible limits to the eventual size of the firm, namely that there is no evidence that at some point in a firm's growth "diseconomies of size" will arise. Mrs. Penrose shows convincingly that the concept of an optimum size of firm derives from the rather restrictive assumptions which are part of the theory of value. Once we are concerned with the firm as an administrative organisation in the real world, capable of producing a variety of products, hiring additional staff, adding to the experience and capacity of its management as it grows, and able to change its administrative structure to allow decision-making to be decentralised, an upper limit to the size of the enterprise seems implausible.

III

The analysis of changes in the rate of growth of firms as they expand and the effect that such changes may have on the process of industrial concentration occupies the last three chapters of the book. In our view this is the least satisfactory part of the work. Mrs. Penrose's broad conclusion is, "There is a maximum rate at which each individual firm can grow under given circumstances. If we consider only firms for which these circumstances are extremely favourable, we should expect the rate of growth of the medium-sized and moderately large firms to be higher than that of the very new and very small firms and higher also than that of the very large firms".

We can treat briefly the reasons advanced for the low rate of growth of the new and small firms; (these two categories are treated as almost co-extensive). The firm is likely to face a number of external difficulties in establishing itself, e.g., the problem of obtaining adequate finance, establishing trade relations, building a reputation with consumers and so on. These impinge upon the availability of managerial resources for expansion by ensuring that a high proportion of the efforts of management will have to be devoted to the day to day running of the business thus precluding the proper planning of an expansion programme.

Once the firm has established itself with consumers, has a proven record of success which will assist its capital-raising ability, and has grown sufficiently to enable it to take advantage of an increased division of labour in the management sphere, the proportion of managerial resources required for current operations is reduced. Capital and managerial resources are available for carrying out substantial investment in fixed assets while the prospect of acquisition by merger further enhances the possibility of a high rate of expansion.

So far the arguments are not unfamiliar, and we do not wish to attempt a detailed criticism. But when we come to the arguments advanced for the fact that the rate of growth of firms will eventually decline with increasing size we are on less familiar territory. It is necessary to look at the case in somewhat more detail, for, as we shall

see, it is very closely linked with the ideas on the process of industrial concentration.

The lines of argument are not very precisely stated but would appear to be:

(1) The expansion of the very large firms is likely to involve expansion into several new fields such that the complexity of the expansion programme raises the managerial task.
(2) The pressure of competitive innovation which is a characteristic of big business competition adds to the pressure on available management.
(3) The problem of co-ordination becomes very great as several activities have to be integrated and large size makes it more difficult to work out a flexible administrative structure.
(4) If in order to avoid some of the difficulties of inadequate managerial resources the firm attempts to maintain its rate of growth by acquisition it will find that there are fewer and fewer large firms available so that it will have to acquire a progressively larger number of small firms to keep up the same rate of expansion. However this process would in turn create such difficulties of co-ordination that the growth rate must eventually decline.

The ambiguity in these explanations is not discussed by Mrs. Penrose. Does the decline in the rate of growth take place because the firm is "large" *in relation to* the remainder of private industry, or because its absolute size is large. The former explanation seems to be suggested by some of the arguments here presented. The pressure to diversify activities is more likely to be related to the size of the firm in relation to the size and growth of the particular industry in which it is principally engaged. While the argument that the possibilities of expansion through merger are restricted by the limited availability of sufficiently large firms to acquire must surely be a question not of absolute size but of the relative size of the acquiring firm and its potential acquisitions. On the other hand it can be argued that the problems of co-ordination of diverse activities only become acute when the firm reaches a certain absolute size.

The significance of this distinction between absolute and relative size may be shown by contrasting the position of some of the large United States enterprises in, say, the steel, automobile, or chemical industries with the position of the largest industrial firms in Australia. If the decline in the rate of growth takes place when the firm reaches a certain absolute size then some of the firms in the U.S. industries mentioned, even though they are not the largest in their respective industries,[17] could have entered the phase of a declining rate of growth, while Australian concerns such as B.H.P. and C.S.R., which

[17] For the sake of example we might mention Republic Steel Corporation (Steel), Chrysler Corporation (Automobiles), Allied Chemical and Dye Corporation (Chemicals).

are smaller than these U.S. firms, could in theory have opportunities for maintaining their previous rate of growth. If relative size is the principal limiting factor then the argument could be completely reversed.

It is clear particularly from the chapter on changes in industrial concentration that in fact Mrs. Penrose does hold the view that the decline in the rate of growth takes place when a certain absolute size is reached. Moreover this absolute size has been reached already by a significant number of firms in the United States, and by some firms at least in the United Kingdom and Canada.[18] It would be wrong to suggest that Mrs. Penrose tries to establish a precise point (in terms of the value of capital assets) at which the rate of growth of a firm tends to decline. This view is explicitly rejected,[19]—"The pattern (*of growth*) sketched need fit no individual firm; firms of the same size will not necessarily grow at the same rate, and the point at which the rate of growth starts its real decline will be different for different firms. Furthermore this point may be extremely hard to locate statistically, for in practice growth takes place in spurts, and periods of relative decline may well be followed by periods of accelerated growth."

The reader who has been convinced by Mrs. Penrose's earlier argument about the lack of evidence to support the view that there is a maximum or even an optimum size to the firm in the real world, may now find it difficult to see why the firm should experience a decline in its rate of growth because of factors associated with *absolute size*. In her earlier remarks Mrs. Penrose suggests, "Apparently what has happened as firms have grown larger is not that they have become inefficient, but that with increasing size both the managerial function and the basic administrative structure have undergone fundamental changes which profoundly affect the nature of the organism itself."[20] One is inclined to think that when the critical absolute size is reached, the large firm might attempt further changes in its administrative structure to avoid some of the difficulties of co-ordination, and enable its rate of growth to be maintained.

That this may not be readily possible is due we believe to a matter of definition. For Mrs. Penrose specifically limits her analysis to the industrial firm, such that a minority shareholding (or even a 50% interest?) in another industrial enterprise would not rank as part of the first firm but only as an outside financial interest with no bearing upon the present analysis. Thus we find, "The decline in the rate of growth of the firm . . . (as we have defined it) may show up primarily as a shift of the investment expenditures of the firm from activities within the firm . . . to investment outside the firm, that is to say in other companies; there is nothing in this analysis which would lead

[18] Pp. 251-252.
[19] P. 213.
[20] P. 19.

to the conclusion that a firm's power to grow financially necessarily declines at any point.''[21]

We would suggest that the sort of change which must take place in the administrative structure of an industrial firm when it reaches a large size might well be the decentralisation of decisions on the raising of capital and on investment. For example we find that the Committee of Inquiry into the Electricity Supply Industry in the United Kingdom recommended that the Area Boards should have direct access to the capital market in seeking investible funds.[22]. This reform was designed to get round the over-centralisation which appeared to be occurring in this giant nationalised undertaking.

If we interpret Mrs. Penrose correctly on this issue such a decentralisation in the case of the private firm might lead to it losing its identity as an ''industrial firm''. The hypothesis that the large industrial firms experience a reduction in their rate of growth after a certain point is thus seen to be of more limited application than might be supposed.

IV

Mrs. Penrose uses the conclusion about the rate of growth of the large firms declining to infer that this process must eventually result in a decline in concentration in the economy as a whole.[23] It is recognised however that the concentration referred to is concentration among ''industrial firms'' and not concentration as a measure of total economic and financial power. There are two problems associated with Mrs. Penrose's approach, the one arising from the statistical method of measuring concentration, the other from the fact that changes in concentration are attributed almost entirely to the changes in the rate of growth of the large firms.

In her discussion on the methods of measuring concentration Mrs. Penrose asserts ''I am not here concerned with inequality, but only with 'absolute concentration' which I shall call simply 'concentration', for our analysis of the growth of firms is most directly relevant to the question how and to what extent economic activity becomes and will remain concentrated in the hands of a few large firms.''[24]

It can be demonstrated that there is no necessary relation between the average rate of growth of the large firms as a group and changes in absolute concentration. Suppose, at a given date in a particular economy, only the two hundred largest firms can be classified as large. Some years later the aggregate net capital assets of these same ''large'' firms has increased by 10% while the aggregate net capital assets of

[21] P. 214.

[22] *Report of the Committee of Inquiry into the Electricity Supply Industry;* Cmd. 9672, H.M.S.O., 1956.

[23] Thus on p. 248 ". . . if our analysis of the factors determining the rate of growth of individual firms is valid, we should expect a tendency for concentration to decline in a steadily growing economy once the larger firms have reached a point where their rate of growth slackens."

[24] P. 246.

all firms in the private sector has risen by 15%.[25] Are we entitled to infer that the absolute concentration rate as represented by the proportion of net capital assets controlled by the two hundred largest firms has decreased? Leaving aside the difficulties in the way of a uniform valuation of capital assets for all firms, it is obvious that such an inference cannot be drawn unless we know that the two hundred firms which were the largest at the earlier date are also the largest at the later date. This however is highly improbable.[26]

If large firms are growing at a rate less than that of the remaining firms then it would be reasonable to infer that in almost all conceivable cases absolute concentration will rise less (or fall more) than if large firms and other firms were expanding at the same rate. But Mrs. Penrose seeks a more definite conclusion than this, namely that in these circumstances absolute concentration will actually decrease—this we would submit is somewhat doubtful.

The other problem of explaining the changes in concentration almost entirely by reference to the rate of growth of the large firms, is in many ways the more important. Mrs. Penrose argues that because of the falling off in their rate of growth the large firms as a group are unable to take advantage of the same percentage of total opportunities as they did previously.[27] This it is suggested permits the small firms to increase in numbers and size. This we believe is to exaggerate the competitive advantage that the large firms normally possess, and to minimise the role of the small firm in a dynamic world where technical change, of one form or another, is continually taking place. Professor Williams has shown that in British industry "research and development is not restricted to large firms; still less is innovation. Indeed, radical changes in processes and products still very often come from small firms and from people outside the recognised trade."[28] There is reason to believe that changes in the number of new firms, as represented by the difference between gross "births" and gross "deaths" in any period of time, may be regarded as being to all intents and purposes independent of the average rate of growth of the large firms. This is not to say that the determining factors are clearly understood, but other factors besides those mentioned by Mrs. Penrose are relevant. For example the diffusion of entrepreneurial ability or enthusiasm in the community at large, the rate of technical progress, the magnitude

[25] The choice of net capital assets as a measure of size follows Mrs. Penrose, but the argument is not affected if some alternative measure, e.g., employment, net output, is selected instead.

[26] A. D. H. Kaplan (*Big Enterprise in a Competitive System*, p. 141) suggests that of the 100 largest industrial corporations in the United States in 1909 only 36 were among the 100 largest in 1948. While Mrs. Penrose is critical of Kaplan's figures (p. 259 n.) she would agree that there is evidence of some changes in the rank order of the largest firms over time.

[27] P. 249.

[28] *Loc. cit.*, *Yorkshire Bulletin*, December, 1959, referring to the findings of Jewkes, Sawer, and Stillerman, *The Sources of Invention*, and Carter and Williams, *Industry and Technical Progress*.

of fluctuations in the level of activity, and the imperfection of the capital market are likely to be of more importance.

In short we would conclude that Mrs. Penrose's explanation of the process of industrial concentration is too simple. It may well be that industrial concentration in the economy as a whole can only be satisfactorily understood by examining the factors causing a high or low degree of concentration in each separate industry. If this is the case it is meaningless to compare levels of concentration in different economies without first examining those particular indigenous industries which go to make up the industrial structure in each country.

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COMPANIES AND SQUATTING IN THE WESTERN DIVISION OF NEW SOUTH WALES 1896–1905

*'It is not a black prospect; it is a black past.'**

Introduction

Between 1880 and 1891 the sheep of New South Wales increased from 35 millions to 62 millions, the grease weight of their fleeces from 182 million pounds to 376 million pounds. Throughout these years wool was responsible for some two-thirds of the colony's export income, whilst—with the exception of the drought years of the mid-eighties—squatting investment greatly outweighed urban investment.

Of the 25 million sheep in 1880 only 5 million were to be found in the low-rainfall saltbush country of the Western Division, and these were concentrated upon the frontages of the Lachlan, Darling and Barwon Rivers. By 1891, however, they had multiplied to 14 millions, increased their share of the colony's flocks from 14 per cent to 22 per cent, and scattered from the rivers to the extremities of the Division.

Between 1879 and 1881, encouraged by high prices for wool and fortified by memories of fortunes won in the early seventies, the river squatters began developing their "back country', and from runs to the east, from the cities and overseas, there arrived "new men" to bid up the price of land. Optimism—and so the cost of entry—was high.

Knowing little of the capabilities or history of the western country, but aware that it offered certain advantages over occupation elsewhere—among them, freedom from selection and a facility for handling sheep in large numbers—men paid prices for stations, and spent sums improving them, far in excess of their real worth. The country had been greatly overestimated.

*Statement by a company manager to the Royal Commission appointed to enquire into the conditions of Crown Tenants in the Western Division of New South Wales. Report and Minutes of Evidence, *Votes and Proceedings of the Legislative Assembly of New South Wales, 1901*, Vol. 4, Q23476. (This will be referred to as *R.C.W.D.* Other abbreviations in footnotes will be: G.M. for Goldsbrough Mort; A.M.L.F. for the Australian Mortgage Land and Finance Company (the "Mortgage" in this title became "Mercantile" early in the present century); A.E.M. for the Australian Estates and Mortgage Company (which, for all practical purposes, was the same as the Union Mortgage and Agency Company, or U.M.A.); A.M.A. for the Australasian Mortgage and Agency Company; and N.Z.L.M. for the New Zealand Loan and Mercantile Agency Company.) Unless otherwise remarked, all the G.M. and A.M.L.F. material used is to be found in the Archives Collection of the Australian National University. The A.E.M. documents cited are at the Head Office of the company in Melbourne. I should like to thank each of these companies for giving me every assistance with my research.

Of the accelerating flow of funds into the Australian colonies at the beginning of the 'eighties a considerable amount was directed into the pastoral sector by a growing number of pastoral finance companies, all competing indefatigably to meet the squatters' requirements. More prominent in the west than elsewhere, and extending finance on a mortgage basis, they usually sought as security the registration of leases in their names. In 1879 banks and pastoral companies were the registered holders of 13 and 4 per cent of Western Division leases respectively. By 1891 the proportions were 17 and 33 per cent.

But the conditions under which the expansion of flocks and indebtedness had begun did not survive the mid-eighties, when severe drought, a fall in wool prices of almost a quarter, and legislation which greatly increased rents and beckoned the selector did much to take the *élan* from squatting in New South Wales. Wool held its own with other commodities until 1891, after which, however, it led the swift decline of export prices into the crisis of 1893.

Whereas in other places general economic recovery might help to rescue the squatting ventures of the 'eighties, a mere rise of prices could never restore the western plains to their old romantic pre-eminence. For the losses incurred there had been more than merely "financial". Since the mid-eighties the land had been deteriorating. Heavy stocking and rabbits had undermined its pastures and reduced its carrying capacity, in many areas for all time. The significance of the great drought which began in 1895 and lasted seven years is that it not only brought home to squatters, the government, and companies the realization that long droughts were characteristic of the west, but, as well, forced the recognition of a loss which had been going on for many years.

Pastoral finance companies were hit hard by the drought but with their many holdings usually had the advantage over individual owners, both in sheep movements and economy of working; and in circumstances of permanently impaired carrying capacity, requiring an increase in the scale of operations, this advantage would survive the drought years. What is more, the ability of many company-involved stations to earn cash surpluses through the years of drought places in a new light the lugubrious prediction of company managers and squatters that the western lands might be abandoned if the government did not intervene with legislation of the most lenient sort. And since company stations were many, our conclusions may have a wide relevance; nor is it likely—even given the advantages of company operation—that they are altogether inapplicable to independent squatters. Great capital losses there had undoubtedly been, but in requesting long tenure at low rentals it is probable that the western tenants of the Crown sought not merely an inducement to remain in occupation (the cash surplus and the prospect of augmenting it substantially with better seasons were inducements

enough) but the chance to retrieve some part of those losses as well. The Royal Commission on the Western Division reported to Parliament late in 1901; the calamitous drought of the following year proved, in the tactical sense, a godsend to the western squatter.

The many foreclosures which took place in the 'nineties were significant not so much as evidence of increasing company "ownership" of stations as of economies carried through first in the financial crisis and later in consequence of the physical changes which had overtaken the western country.

I. Physical changes

In 1894 there were 56 million sheep in New South Wales; in 1902, 27 millions. And just as the Western Division, relatively speaking, had led the expansion of flocks in the 'eighties and early 'nineties, so it led their reduction between then and 1902. For in the west the impact of the great drought of 1895–1902 was the outcome not merely of a paucity of rain; events and practices of earlier days had established conditions in which any falling away of rainfall would be disastrous. Overstocking, rabbits, and the encroachment of noxious scrub had done permanent damage to pastures, and the recovery of the Colony's flocks after 1902 was concentrated not in the west—where fleece weight rather than numbers was to be the instrument of pastoral revival—but in those regions where pastures had survived and rainfall had proved less unreliable.

From the beginning the squatter had overestimated the saltbush country and stocked it heavily. The evidence of a Dalgety Inspector of Stations before the Royal Commission of 1900 was typical:

> I knew the West Darling country first in 1878 . . . before it was fenced in and occupied by sheep. I knew it in its aboriginal state. There is no doubt in my mind that the carrying capacity of the country was greatly over-estimated by the early settlers. In its virgin state, with the saltbush and other edible bushes in their prime, there was hardly a limit, except as regards water, in the opinion of settlers then to what the country would carry, and in many cases it was stocked accordingly, but they forgot in doing this that they were eating the haystack, and there was no crop growing to build another. Then the rabbits came along.[1]

It is difficult to arrive at an accurate impression of the emergence and spread of rabbits in western New South Wales. They appear to have come from the south in the mid-eighties, working their way up the Darling and then to the west and east; by 1890, it is certain, they had overrun the greater part of the western plains. By that year, indeed, much of the Cobar country had been rendered desolate:

[1] *R.C.W.D.* Q.8482. In the late eighties pressure of debts and legislation which inhibited the improvement of resumed areas may have played a part in overstocking but there is not space enough here to dwell on it.

> Miles and miles of country out here have been unstocked for the last twelve months . . . notwithstanding that we have been passing through one of the best seasons ever seen on the Darling.[2]

Paddington run was in "a dreadful state", and at Mulga Downs "there was no grass anywhere . . . there was neither grass nor herbage. . . . The rabbits had pretty well eaten the place out."[3] Even on unstocked country the rabbits exacted their toll, and their effects on pastures and carrying capacity elsewhere in the west were vividly described by witnesses before the Royal Commission. Attempts to contain the menace failed, and it was not until the onset of drought in 1895 that the pest began to wane. By then, however, the damage had been done. "It is really a case of plague. It is the rabbit plague which is at the bottom of the whole thing."[4]

In the meantime, on the West Bogan country especially, noxious growths such as pine, coolibah and buddha had done as much as rabbits to reduce the carrying capacity of the land:

> When my firm first bought the place it was open box country, covered with a waving mass of herbage. . . . I thought it was a pastoral paradise. That was before the growth of pine scrub. When I came up in 1885, the pine scrub had started to spread to an enormous extent. I scrubbed the place in 1886, again in 1890, and later in 1894, and some of it is now nearly as bad as ever—after the three scrubbings.[5]

In 1895 the Western Division presented a very different aspect from that which met the eyes of settlers in 1880; many of the grasses and much of the edible scrub had gone. As the drought developed, sheep were forced on to what remained of the scrub, and by 1900 it, too, had disappeared:

> . . . the future of the west, in consequence of the disappearance of edible plants during the past few years, is enveloped in very grave uncertainty.[6]

With the decline of the vegetation, prevailing westerlies whipped up sandstorms which engulfed fences, silted tanks and choked pastures:

> There are lots of places in the west where you can drive over the netting. I know of some places where two fences have been put up, one over the other, and both of them are nearly buried.[7]

[2] Inspector Nutting on Tiltargara, 29 July 1890, in Reports and Valuations on Stations (New South Wales 1886-1891) (A.E.M., D.2). Also *R.C.W.D*, Q.3157 for transformation of Cobar country in the 1880s with rabbits and overstocking.

[3] Reports and Valuations, C. W. Little on Mulga Downs, 8 July 1891.

[4] *R.C.W.D.* Q.7920, Lewis Kiddle, Manager of A.M.A. He dated the deterioration of properties from the advent of the rabbit in the mid-eighties (see Q.8033). See also Q.3157, 2077, 13690, 21688-91, etc., for the testimony of other witnesses).

[5] *Ibid.*, R. Griffiths of Nymagee, Q.10066-7, 10124. See also Q.21363, 3035, and *passim*.

[6] *Ibid.*, Part I. *Report and Summary of Evidence*, p. viii.

[7] *Ibid.*, Q.264.

The drought worsened. Losses were huge among the many holders unable to get their flocks away either to market or to country where feed was available; the stock routes were impassable. Lambings had become matters of chance. The succession of dry years culminated in the disaster of 1902 which brought ruin to eastern and western areas alike. The Sydney water supply gave cause for alarm, as the Cordeaux and Cataract Rivers, tributaries of the Nepean, had diminished to a trickle. The Darling went dry at Bourke and dead sheep littered the stock routes. In the western country, as far as the eye could see, the land was a creeping sand, eddied by the wind.

> . . . the public mind is now bordering on almost panic and much depends upon the outcome of events during the next few weeks how much further this will go.[8]

II. Some western stations

To arrive at some idea of the effects of drought upon finance companies involved in the Western Division we shall examine the performances between 1896 and 1905 of a number of western stations. Of these, 10 owed Goldsbrough Mort almost a million pounds in 1896, but although studied as a group they are not presented as a sample. Several other companies were committed heavily in the west and were variously fortunate in the distribution of their risks. Yet the factors of crisis were common to them all, and further company evidence suggests that the experience of the Goldsbrough Mort group of stations had a relevance beyond itself.

By the time of the Australian financial crisis in 1893 Goldsbrough Mort had advanced on pastoral holdings some £3,367,000, of which £1,132,000, or 34 per cent, was outstanding in the Western Division alone. In 1883 these sums had been £1,124,000 and £280,000 (25 per cent) respectively. Here, then, was a pastoral finance company which, in a decade of squatting expansion and competition, had not merely quadrupled the volume of its Western Division commitments but had, as well, increased them relatively to commitments elsewhere.

On the ten stations it will be found that despite the drought which began in 1895 and terminated some eight years later, working cash surpluses were made in every year but one—1902, the final and severest year of drought, in which extraordinary measures were undertaken to keep a nucleus of breeding sheep alive.[9] And although a considerable proportion of the aggregate cash surplus for ten years was the result of flock dispersal by sale, there yet remained, apart from that, a large cash gain for which the company in the

[8] McClure-Smith to London Office, 3 June 1902 (A.E.M., London Office 8).

[9] See Appendix I for details of the stations. The Company had other accounts in the west but, with one exception, they were small. The ten chosen are the only ones with unbroken "runs" of profit and loss statements for the years under study. The year 1896 is the earliest from which a useful group study might begin. There is information among the Goldsbrough Mort papers for 1895 and even 1894, but it is at present so fragmentary as to be useless for our requirements.

circumstances could be thankful. Nevertheless, the gains made—however calculated—were but a small return on the money advanced by the company in the Division. Losses had to be faced and write-offs made, for even with the coming of good seasons and higher prices western properties would never be the producers they were twenty-five years before. The drought itself revealed characteristics of pastoral enterprise to which companies were slow to accustom themselves, and compelled a reorganization of stations in which many owners who had survived the financial crisis of the early 'nineties were finally relieved of their possessions in the west.

(i) *Flocks*

Between 1896 and 1902 the number of sheep on our stations declined by some 50 per cent.[10] This reduction was roughly equivalent to that in the colony at large; but it occurred for different reasons. Whereas mortality was responsible for the shrinkage in colonial numbers,[11] the explanation in the case of the Goldsbrough stations is to be sought more in the behaviour of sales and purchases.[12]

TABLE I

Flock changes—ten stations

Period	*Lambing in excess of mortality*	*Sales in excess of purchases*
1896–1902	–38,196	.. 204,615
1903–1905	138,098	.. 127,946
Total	99,902	.. 332,561

Source: Appendix II.

From Table I it can be seen that whilst the drought years 1896–1902 caused a net natural decrease of some 38,000 sheep, the halving of flocks in that interval was mainly brought about by a large excess —about 205,000—of sales over purchases. Goldsbrough Mort had managed, by means of sale, to get sheep away during the years of

[10] See Appendix II. The inclusion of data for 1895, one of the worst years of drought in New South Wales, would probably modify our results somewhat.

[11] It may be noted, however, that agistment from southern Riverina into Victoria was of some importance in particular years. In 1902, for example, almost 2,000,000 sheep and 50,000 cattle moved across at Wodonga, Echuca, Tocumwal, and other towns along the Murray. In 1899 well over a million crossed (see *Victorian Statistical Register* 1902). Since figures for Victorian flocks between 1896 and 1902 are unavailable this agistment process must qualify any remarks about the recuperative powers of the pastoral industry in New South Wales. The swift recovery of New South Wales flocks after 1902 might to some extent have been the outcome of re-transfers between Victoria and southern Riverina.

[12] Our concern throughout is with the *evident* physical and financial consequences of the drought. Calculations may be made of loss of natural increase but would take us too far into conjecture.

drought.[13] Taking the remaining three years into consideration, the result for ten years was a net natural increase of 100,000, but because sales remained high the average flock varied little from its level of 1902.

The rate of net natural decrease on the ten stations as a result of drought compared favourably with the colonial change; and sheep which were saved were available for sale. Companies, of course, were in a much better position to minimize their stock losses than were most private owners. To begin with:

> We are favourably situated as compared with an individual owner. There are nine properties, and to a certain extent, when faced by the seasons, I move the sheep from one place to another . . .[14]

Clearly, when inadequately watered stock routes and reserves were rendered impassable by drought, this advantage was a considerable one.[15]

As well, companies were better able to protect their flocks while on the station by such expensive means as scrub cutting, water carrying, and continual movement of the sheep between paddocks, each requiring the employment of extra men; whilst in circumstances which rendered the individual borrower an unthinkable risk, Goldsbrough Mort and the Australian Mortgage Land and Finance Company made heavy capital outlays in the form of bores, tanks, and subdivision fencing upon their better properties in the early stages of the drought. Where opportunity offered, stock were artificially fed or agisted—at great expense in droving, trucking and rent—on country which had been favoured by rain. And just as companies were able to protect their sheep by moving them among stations, so, too, could they move them to facilitate sale. Such movements, indeed, were often complementary, and the numbers of stock unloaded upon particular markets could be regulated to produce the best results.

In no fewer than four of the seven drought years, however, the rate of mortality was high and outweighed sales as a cause of flock decline. These were 1896, 1899, 1901 and 1902. Companies may have had the advantage over individual owners in shifting flocks about,

[13] This was done on an even greater scale with its Central Division flocks, opportunities for sale being more numerous further east. The drought was widespread, and had seriously afflicted also the central pastoral lands of New South Wales and Queensland.

[14] *R.C.W.D.* Q.7922, 7923, Lewis Kiddle, manager of A.M.A. For another case, see Q.11749. West of the Darling the G.M. properties Corona, Gnalta, Packsaddle and Cobham were, in the matter of sheep movements, virtually one after 1897. In the same region A.M.L.F., after 1897, moved its sheep about among seven stations in the track of thunderstorms, whilst east of the Darling, A.E.M. later transferred stock between its Cobar possessions. In 1900 Tarcoola sheep were agisted on Canally, and Canally sheep were on Kulkyne, across the river in northern Victoria (see Canally balance sheet 1900 in A.M.L.F. station accounts).

[15] See *R.C.W.D.* Q.13755, 13778, 13694, 11951 and 19408 where inability to get stock away in times of drought is attributed to the state of the stock reserves and routes, especially west of the Darling.

but this more often took the form of minimizing losses than avoiding them.[16] The year 1902, although severest of the four in terms of rainfall, was lightest in terms of mortality, for properties by then were well understocked and desperate measures were taken to keep the remnants of flocks alive.[17]

In the dry years the immediate reason for selling was to relieve the runs and fetch a return for sheep which would otherwise perish, in the better years which followed, to "play safe" with carrying capacity and at the same time exploit high prices for sheep as restocking got under way. To the financial consequences of this flock disposal we now turn.

(ii) *Working cash income*

Perhaps the most interesting thing to emerge is that in every drought year but one—1902, when protective outlays were unusually high—the group of stations made a working cash surplus. The details are given in Table II. When stock income is omitted the result is still a cash surplus,[18] for wool, despite heavy stock realizations, was by far the chief source of income on these stations. And in fact, neither wool income nor total money expenses varied directly with flock changes. Wool receipts even increased as flocks declined—although only until 1899—whilst total money expenses were comparatively stable over the seven drought years; not only did drought outlays increase as the seasons worsened, but the "ordinary" expenses of handling sheep could not be reduced proportionately with their numbers. In these circumstances companies economized. Many owners were removed; properties were amalgamated or loosely associated to reduce working expenses; and at all times the company inspector kept a watchful eye upon the management of individual properties.

Working cash surplus for ten years was £298,000. Of a gross cash income of £671,000, stock sales provided £130,000, or 19 per cent.[19]

[16] What is more, three of the years of heavy loss were also those of high prices for stock. See Appendix II.

[17] The heavy drought outlays of 1902 only become meaningful in the light of the composition of flocks in 1902—mainly breeding sheep, assiduously protected through the preceding dry years to form the nucleus from which any recovery of flocks would have to begin when the seasons broke.

[18] The ability of an enterprise to earn working cash surpluses sufficient to cover the maintenance of its equipment must, in the long run, be the criterion of its survival. In the short run it may earn less and survive, providing its share- and debenture-holders behave rationally. If, however, the financial environment should be hostile it will be important to earn something. For companies such as G.M., A.E.M. and N.Z.L.M., which had borrowed largely on short-term debentures and were confronted by their creditors in 1893, the cash surplus thus took on a meaning which had been lost in the ebullient eighties.

[19] A smaller proportion, if we compare totals at 1902. Thus, even when the proceeds of running down earning assets—sheep—are ignored, the result is still a very substantial cash surplus. Of the ten stations three made small working losses for the period 1896-1902; but two of these (Talowla and Goolring) were small areas especially vulnerable to drought and were not typical of company possessions in the west. Their losses, nevertheless, were transformed into surpluses as better seasons took hold in 1903-5.

TABLE II

Working cash income—ten stations

£'000

Year	(i) Wool and other income	(ii) Ordinary expenses	(iii) Surplus	(iv) Net stock sales	(v) Drought and other expenses	(vi) Working cash surplus
1896	58	39	19	—4	3	12
1897	61	36	25	12	3	34
1898	71	40	31	13	4	40
1899	82	35	47	21	6	62
1900	45	33	12	13	9	16
1901	44	31	13	2	9	6
1902	42	27	15	—2	14	—1
	403	241	162	55	48	169
1903	34	24	10	27	4	33
1904	46	26	20	9	3	26
1905	58	24	34	39	3	70
Total ..	541	315	226	130	58	298

Source: G. M. & Co. Working Statements and Security Sheets.

Explanation:

Col. (i)—"Other income" consists of skins, tallow, rent received and "miscellaneous", and averages little more than £1,000 per annum. At no time is it responsible for any significant variations in the "wool and other income" figure.

Col. (ii)—Wages, shearing, carriage, scouring, supplies, rent, repairs and pests.

Col. (iv)—Sales less purchases of sheep, cattle and horses. Transactions in cattle and horses were never significant.

Col. (v)—"Drought" includes scrub-cutting, droving and agistment, water carrying and horse feed; "other", such items as rock salt, disease innoculations, stationery and legal expenses. "Drought" dominates this series from 1899 to 1902. No doubt as the first dry years assumed the aspect of drought, station bookkeepers began including erstwhile "ordinary" expenses among "drought" outlays. This would especially have been the case with the wages of station labour; but there is no means of checking. On the other hand, certain of the "ordinary" items would have been increased by drought (see Note, Table IV).

Col. (vi)—Working cash surplus, col. (ii) + col. (iv) — col. (v).

Wool, clearly, was the chief earner, and would be even more conspicuous as such in times of normal flock sales. In the words of one company manager, "it is the business of a Squatter or of a Squatting Company to grow and sell wool, as it is much more profitable than selling *sheep*".[20] Moreover, as the average flock declined wool receipts actually increased between 1896 and 1899—the outcome, partly, of

[20] McClure-Smith to London Secretary, 25 May 1898 (A.E.M. London Office 3).

rising prices.[21] By 1900, however, with numbers largely reduced and prices receding, wool income almost halved and until 1903 continued to diminish with flocks despite improving prices. Taking advantage of high prices for sheep as restocking began in New South Wales following the break of drought, stock sales were heavy in 1903. In this connection two things are worthy of remark. First, 170,000 sheep sold in the concluding three years of the ten yielded £75,000 as against £55,000 received for 518,000 over the preceding seven. Secondly, although stock sales were heavy after 1902, the flock was maintained by natural increase.

Given that stock receipts and drought outlays are "erratic" items, probably the best index of returns to our stations as woolgrowers is obtained by dividing the "surplus" of column (ii) by "average sheep carried". The results are shown in Table III. The ameliorating role of wool prices in two of the worst drought years—1899 and 1902—is immediately conspicuous, as is their continuing rise in 1904 and 1905.[22]

TABLE III

Returns per sheep—ten stations
(pence)

Year		*Year*	
1896	10	1901	11
1897	13	1902	16
1898	17	1903	11
1899	31	1904	20
1900	10	1905	35

The striking feature of total money expenditure is that it remained almost constant through the seven drought years 1896 to 1902, implying—as the flock declined—increasing expenses per head.

[21] Since sheep were mainly sold off-shears, wool production would tend to lag behind the change in "average sheep carried". We have no statistics of the sheep shorn on these ten stations, and the wool they produced was undifferentiated for greasy and scoured. The "average sheep" notion is crude but has a certain reference value (see n. 22, for an example of the way in which it might mislead). The part played by prices in 1899 is undoubted, for having increased gradually from 7d. in 1896 to 7¾d. in 1898, greasy wool prices (Coghlan) rose to 13d. in 1899. They dropped to 7d. again in 1900, and rose to 7¼d. and 10d. in the two succeeding years. Although we cannot separate greasy and scoured wool production on our stations, scouring outlays increased substantially between 1896 and 1897, so that the increased value of the clip between those years might have been less the result of the small price rise than of an increase in the proportion of the clip which was scoured. Further, although we have little information about fleece weights on our ten stations, some evidence suggests that they varied markedly with the season, being especially low in 1895-6, 1899 and 1902. This may well account for the results in 1897 and 1898.

[22] Ordinary expenses per head were stable after 1900. The "surplus" figure for 1903 is the result not of wool prices—they dropped only slightly in that year—but of heavy stock sales before shearing.

TABLE IV

Cash expenses per sheep—ten stations
(pence)

Year	*Drought and other**	*Ordinary**	*Total*
	d.	*d.*	*d.*
1896	2	19	21
1897	2	19	21
1898	2	21	23
1899	4	23	27
1900	7	26	33
1901	8	26	34
1902	15	28	43
1903	5	27	32
1904	3	26	29
1905	3	25	28

Sources Table II, col. (ii) + col. (v)

*In some measure "drought" and "ordinary" expenses are inextricable. The distinction is persevered with here (a) because station bookkeepers used it, albeit inconsistently, and (b) because although the drought may have helped to increase "ordinary expenses per sheep" it merely exaggerated a tendency which was already there. Whatever the reason, certain expenses (and so total costs) could not vary proportionately with flocks (compare 1896-7 and 1904-5—and this despite a drastic reduction in rents in 1904-5 to merely nominal levels. Other prices do not appear to have varied much.).

After 1898 "extraordinary" (that is, drought) outlays increased steadily to 1901 and then doubled in the year of severest drought. The share of "drought and other" in total money expenses, 6 per cent in 1896, had become 34 per cent by 1902. The high expenditure of the latter year reflected a determination to maintain at least a breeding flock from which to build up once the season broke. References to how much sheep would fetch when the drought ended were frequent in station reports, and in 1903 prices did increase substantially under the demand of restocking.

But even apart from drought outlays our figures reveal that "ordinary" expenses did not vary proportionately with flocks. Thus the average flock declined by 40 per cent between 1896 and 1901, ordinary expenses by only 20 per cent. Labour, rent, supplies and repairs were mainly responsible, whilst shearing, wool carriage, and, to a lesser extent, scouring, varied directly with sheep numbers. There was little change in wage rates and none in shearing rates over the six years. Rents were lowered once—in 1897—but thereafter remained unaltered until 1902.

It was difficult enough to reconcile shareholders and creditors to drought measures without having to convince them of this other "fact" of the squatting life. Exasperated by requests to economize, the manager of Australian Estates explained to his head office in London:

> . . . the disastrous seasons this past few years have worse than neutralized all our efforts in this direction, as in time of drought, instead of reducing expenditure, extraordinary outlays are incurred in order to preserve the stock from destruction. . . . Another thing is that it costs in "ordinary expenses" just as much to superintend the present numbers of stock on the stations as double the same.[23]

With expenses high and many of their western advances yielding little return, companies took steps to economize. On several occasions in the early 'nineties the Australian Mortgage Land and Finance Company had foreclosed on properties which were adjacent, dispossessed their owners, and worked them as one. After 1895, as the drought worsened and flocks dwindled, the need to reduce expenses further became pressing, and in 1898 five more stations were annexed to two already being worked together in the extreme north-west. Although it had removed their owners long before, Australian Estates made no attempt to work the Cobar stations as a group until late in 1899, when flocks had become so seriously depleted that the management began

> taking steps to ascertain if the expenditure in the aggregate cannot be curtailed by concentrating the stock on fewer properties, and thus enabling a large number of the employees being dispensed with.[24]

The Cobar stations shortly afterwards became the "Cobar Group" in company correspondence.[25] As early as 1894 an official of Goldsbrough Mort had asserted[26] that properties upon which the company had advanced "full value" should be worked together for their "general good". With the onset of drought in 1895 and heavy stock losses in that year and 1896, the Board resolved that the West Darling Pastoral Leases should be "worked as a whole under the supervision of a competent manager . . . considerable economy might be made by working on these lines".[27] Owners who had not already done so were asked to surrender their equities, and in early 1898 William Hogarth, a man of long experience in the west, was appointed manager and inspector of them all. Killen of Elsinora alone was intransigent, and not until 1900, the year of his dispossession, were that station

[23] 3 December 1901 (A.E.M. London Office 7). An account of the high expense of working smaller bodies of sheep is to be found in A.M.L.F. Western Lands Papers—Paddington Station; and there are similar remarks in the report of Inspector Hogarth from Gnalta 5 November 1901 (G.M. & Co. General Manager's File 1901: Reports). See also *R.C.W.D.* Q.9352 for the case of Weinteriga station.

[24] 23 October 1899 (A.E.M. London Office 5).

[25] The stations were Springfield, Tindarey, Errebendery, Moothumbil and The Priory in the Western Division; and Overflow, Panjee and New Babinda in the Central Division nearby.

[26] G. W. Moore in Memo. for General Manager, 21 November 1894 (G.M. & Co. Board Memos. 12/6/94–11/4/96).

[27] G.M. & Co. Minute Book No. 2, 11 October 1896 and 18 October 1897—Melbourne.

and its neighbour Thurloo Downs conducted as one, the advantages of which had been suggested many years before.

> On all stations the company inspector was omnipresent: I have told Lack that I don't think he has been as economical as he might have been. I noticed that there is a piano in the house but in going through the accounts could not see how it was paid for.[28]

Hogarth continually moved his sheep about, ensuring not only that they survived but that certain economies were made as well:

> I had the sheep sent on to Cobham where the feed was good, but should the season prove favourable these sheep will be shorn at Corona, and save carriage.[29]

It would be difficult to exaggerate the importance of the station inspector in company squatting. He was the trusted link between head office and the properties; his recommendations were almost invariably followed. This was especially the case with a company such as Goldsbrough Mort, the managers of which had—until the late 'nineties—been drawn from banking circles.

Some properties were better earners than others. Of the Goldsbrough Mort group the large areas Thurloo-Elsinora, Eremeran, Corona, and Cobham stand out.[30] Australian Estates was unfortunate in having its western possessions concentrated in the vicinity of Cobar, an area which had been thoroughly eaten out by rabbits:

> I submit . . . [we] quit our connection with the Cobar District *almost at any hazard,* and secure as good a property as we can get in Queensland, or even elsewhere, with the funds at our disposal.[31]

These despairing words were written by Smith to his London office in early 1899. In the preceding four years the eight stations of the Cobar group had yielded altogether an average annual cash surplus of only £3,844, or 4·4 pence per head, on an average of 211,624 sheep carried. Well might Smith lament this as "a most ghastly contribution towards the payment of interest on the huge capital involved". Yet some contribution was made.[32] The possessions of A.M.L.F., in contrast, were well scattered, those in the north-east and south-east registering comparatively higher surpluses than those

[28] Hogarth at Goolring 28 November 1901 (G.M. & Co. General Manager's File 1901: Reports).

[29] Hogarth at Packsaddle, November 1901.

[30] Thurloo-Elsinora had several flowing bores and until 1900 was favoured by the seasons; Eremeran was heavily improved and had been more successful than its neighbours in keeping rabbits at bay; and Cobham abutted on Cobham Lake (full in 1898). The results of the latter station and Corona were, in part, the corollary of a poor performance by Gnalta-Packsaddle.

[31] McClure-Smith to London Office, 29 March 1899 (A.E.M. London Office 4). It was McClure-Smith's belief that the company could, by judicious sale, realize the properties at a value greater than such returns implied.

[32] These places continued to make a small cash surplus after 1899, when their working was rationalized.

in the north-west, the few in the Cobar region performing no better than the stations of Australian Estates.

(iii) *Capital changes and losses*

> You are quite of opinion that the country must be held in occupation? . . . I think it is a great thing to have it occupied.[33]

That most company stations should have been able to earn cash surpluses between 1896 and 1902 was sufficient guarantee of their continued existence. And what, in addition, might better seasons accomplish? Indeed, that the Goldsbrough Mort stations should have earned in the drought period enough to cover not only the reduction in the value of their flocks but also the depreciation of other station assets was what the company might reasonably have hoped for in the long run let alone the short. Although capital loss was "under the bridge" and of little relevance for the future occupation of the Western Division, such loss was universal and frequently spectacular, decimating the reserves of some companies and compelling others lacking them to make arrangements with creditors and shareholders for the writing-down of capital.

The remainder of our station data are presented in Table V.

It leaps to the eye that the total working surplus of £169,000 for 1896–1902 exceeded by £50,000 the sum of livestock decline and depreciation of station property—and this in a short period characterized by drought. The performance of the group after 1902—with a reduced flock—speaks for itself. Further, the depreciation provisions of 1896–1900, based as they were upon the still optimistic property valuations of the mid-nineties, were more than adequate to "maintain intact" a capital worth something less than those valuations implied.

Capital outlays on the ten stations declined continuously between 1896 and 1904, but we should be careful of reading anything into this. A period of nine or ten years—seven of them droughty, so making improvements difficult to carry out—is too short for making deductions about the expectations of the company undertaking the expenditure. Nor is the group of ten stations large enough; by 1899 Elsinora–Thurloo, Eremeran, Eldorado and Talowla had (for the time being) reached the limits of their improvement; on them the company awaited only good seasons to reap where it had sown. And capital outlay cannot be considered independently of "repairs", from which in many cases it was indistinguishable. The "repairs" item in the money expenses series did not vary at all with flocks, averaging about £2,000 for the ten years. If in the later years little was being spent on additional improvements, nothing was being spared to maintain existing ones.

[33] *R.C.W.D.* Q.23383-7. Answer by J. R. French, manager of the Bank of New South Wales. For suggestions by company managers that inducements must be offered by the Government to prevent leaseholders abandoning their country see *e.g.* Q.8182 (Elder of N.Z.L.M.), 22911-12 (Maiden of G.M.) and 7117 (Kidd of A.M.L.F.).

TABLE V

Capital changes—ten stations
£'000

Year	(vi) *Working cash surplus*	(vii) *Capital outlays*	(viii) *Value of livestock change*	(ix) *Depreciation*	(x) *Profit*	(xi) *Company valuation of stations*	(xii) *Company advances on stations*
1896 ..	12	11	—10	11	—9	547	935
1897 ..	34	7	2	12	24	555	–
1898 ..	40	7	—25	14	1	537	–
1899 ..	62	6	—4	14	44	489	–
1900 ..	16	4	40	14	42	182	–
1901 ..	6	3	—25	7	—26	215	–
1902 ..	—1	1	—19	6	—26	219	–
Total ..	169	39	—41	78	50		
1903 ..	33	1	46	3	76	202	–
1904 ..	26	1	2	3	25	199	–
1905 ..	70	2	—41	3	26	192	–
Total ..	298	43	—34	87	177		

Source: G. M. & Co. Working Statements and Security Sheets.

Explanation:

Col. (vii)—Plant purchased and improvements (tanks, fences, bores, etc.) made.

Col. (viii)—The value of stock at end less value at beginning, the average sale price in each period being the closing price of that period and the opening price of the next.

Col. (ix)—Provisions for depreciation of improvements 5 per cent, plant 10 per cent, and wastage of lease according to tenure.

Col. (x) is (vi) less (ix) plus (viii).

Col. (xi)—The company's valuation of leasehold and freehold lands, the improvements thereon, and livestock. Revaluation and reconstruction were undertaken in 1900-01.

Col. (xii)—With foreclosures and write-offs after 1896 the debt figure becomes meaningless. As well, there are very few figures available for the original equities of squatters in their stations; the money lost by the companies represented a great part, but not all, of total capital loss.

There were, however, properties the futures of which were at least uncertain. Hogarth was confident that the pastures and saltbush would recover at Corona, and hopeful that they would at Cobham after two or three years of light stocking and more rain; but of possibilities at Gnalta–Packsaddle he was sceptical. Australian Estates had a number of stations like it in the Cobar area. The policy of this company was "not to starve our best properties . . . where there is not the slightest doubt that any improvements effected . . . will be amply compensated for by the increased returns from the properties".[34] The eaten-out Cobar places clearly were not considered

[34] 23 August 1897 (A.E.M., London Office 1).

to be among the "best properties", for between 1895 and 1905 £128,000 was spent upon company and clients' stations, of which less than £3,000 was devoted to the Cobar holdings.[35] Smith was wary of new investment in the mid-west and to suggestions from London that clearing and other improvements might increase the carrying capacity of company possessions there retorted that

> You cannot be surprised at our losing all faith in such predictions, as in the country in question there are so many unforeseen developments possible, which render it impossible to embark on additional outlay with any confidence of success.[36]

Enough, and no more, was spent merely to maintain the properties, the attitude being one of "wait and see". In the four years 1895 to 1898 the Cobar group earned an average cash surplus (including net stock sales) of 4·4 pence per head upon an average flock of 211,624 sheep and lambs, which contrasts with the performance of another Australian Estates property in Queensland which gave 2*s.* 6*d.* per head upon 188,739 sheep and lambs, its working expenses at £73 6*s.* 8*d.* per 1,000 sheep being only half those of the Cobar group and its area one-third.[37] Smith, by lugubrious calculation, concluded that the Cobar stations were barely worth the sheep upon them. He suggested giving them up and selling all stock, putting the proceeds to work elsewhere; if they earned no more they would at least do so with less risk. His London board refused; better seasons and improved lambings would justify the maintenance of the stations and enhance their values considerably. As it happened, the company held several of them well into the present century.

But the Cobar area was not the Western Division at large, and the region between Cobar and Hillston was the only one in which, by 1900, vacant holdings were at all numerous. It is significant that six properties sold "for a song" by New Zealand Loan and Mercantile in the late 'nineties were to be found in this region. The legislation which was introduced in 1902, providing long tenure and nominal rents, made only token provision for differences in quality of the Division lands. In bringing relief to the worst it brought gain to the better.

Yet whatever the gain, it could never be enough to relieve in any large measure the capital losses of the past, losses which were the consequence of an original overestimation of the country and changes which that country had subsequently undergone.[38] In 1900–1 Goldsbrough Mort reconstructed for the third and last time. Of some £1,000,000 written-off advances between 1896 and 1901 the ten

[35] Private Balance and Account Books Nos. 1, 2 and 3 (A.E.M., D.23). The debts on the Cobar stations made up about one-third of the company's gross advances in 1894.

[36] 29 March 1899 (A.E.M., London Office 4).

[37] *Ibid.*

[38] To appreciate the magnitude of the losses described the reader should recall that wool in these times was selling at between 6d. and 10d. per lb.

western places alone were responsible for about £600,000.[39] New Zealand Loan and Mercantile had also reconstructed more than once, and

> Almost the whole of the money lost by the company in Australia, provision for which has been made by writing off shareholders' and debenture capital, was through advances made on securities in the Western Division of New South Wales.[40]

In the late 'nineties the company disposed of six places by auction the leaseholds of which fetched £6,618; the amount spent on improvements had been £103,917. The position of Australian Estates was no better. Tiltargara, on which £104,000 was outstanding, had £80,000 written off in 1896–7; after the drought of 1902 it could not find a buyer at £1,000.[41] And so on. These two companies, whose holdings were concentrated upon some of the worst country in the Division, provide the most spectacular examples of loss. Eight stations foreclosed by Dalgety in the 'nineties had debts totalling £542,500, of which £200,000 was written off in 1900.[42] The companies were not alone; a long procession of squatters bewailed its losses before the Royal Commission.

The origins of these losses were in the 'eighties, but the drought had consequences of its own, chief among them an ageing of flocks as the weather took its toll of lambs. And for certain of the companies this loss of lambs meant more—the wiping out of years of effort to improve their quality:

> The series of droughts has . . . had a serious prejudice upon our efforts in the improvement of the flocks in having destroyed the most valuable lambings we have ever had.[43]

The magnitude of the losses sustained by companies varied not only with the location of their possessions—in which regard Goldsbrough Mort, Dalgety, and Australian Mercantile Land and Finance were evidently better off than others—but also with the manner in which money had been advanced in the past. Goldsbrough Mort and Australian Estates had been munificent; Dalgety may have been more circumspect. It all depended upon

> how much you have lent, and people may have a lot of money independent of their stations.

[39] Their debts in 1896 become £807,000 after deducting the Eremeran and Bulla Bulla write-offs of 1894 (see Appendix I). The company's advances (including accumulated interest) on stock and stations in 1896 totalled £3,300,000, of which its own stations comprised £500,000 (G.M. & Co. Balance Book March 31, 1897—Melbourne). The writing-down of the western stations appears to have been at least liberal (see below, III).

[40] *R.C.W.D.* Q.8178, the general manager, David Elder.

[41] Private Balance and Account Book No. 1 1895-1901 (A.E.M., D.23) and manager's letters to London 22 May and 25 September 1907 (A.E.M., London Office 12).

[42] *R.C.W.D.* Q.8557, 8561.

[43] 3 March 1899 (A.E.M., London office 4).

But you would not take their money independent of their stations?

Would not we?[44]

III. Foreclosure

You are the Stock Inspector for the Bourke Sheep District?

Yes.

How long have you occupied that position?

Four years.

How long have you been in the district?

Forty-six years.

What occupations have you followed during that period?

I have been station owner, station manager, and station overseer.[45]

With debts usually well in excess of station values, foreclosure was common in the 1890s, but its significance was not so much as evidence of increasing company "ownership"; rather it showed a growing concern for the survival of flocks and the economy with which stations were being worked. Measures which had been desirable in the financial crisis of the early 'nineties became imperative in the drought. Owners were removed not only for reasons of bad management or legal obstruction, but also in cases where the combined working of properties rendered even the good manager superfluous. Some companies, however, were slower to economize than others, for which —in one case at least—relations with creditors may have been responsible. And whilst moves to cut expenses frequently involved foreclosure and the surrender by squatters of their Equities of Redemption,[46] it was sometimes inexpedient to serve notice upon owners. Thus even where a squatter was hopelessly involved it was not in the interests of the company to remove him if he remained the best available manager of his station; provided, of course, there was no possibility of working the property with others and so dispensing with his services. Again, in rare cases stations paid interest from current earnings—their "values" exceeded their debts—and in others the squatter had alternative means; any attempt to foreclose would have risked the loss of "safe" business. Finally, the effect of one provision in the Land Act may have been to make certain foreclosures inadvisable.[47]

[44] *R.C.W.D.* Q.8598-9 (James Aitken of Dalgety).

[45] *Ibid.*, Q.136-9, interrogation of D. W. Hatten.

[46] The squatter had rights to the sales proceeds of his station over and above the debt on it. In the present case of debts very much beyond station values the equity was not as important as the ownership rights accompanying it, resulting as they often did in interference by squatters with station management.

[47] Crown Lands Act of 1884, s. 84, dealing with Homestead Leases. For lack of space this summary of reasons for *not* foreclosing, inadequate though it is, must suffice. Of the Pastoral Leases in their names in 1900, A.M.L.F. did not foreclose upon 12 of the 31, G.M. upon 3 of 16 (nor upon 3 Homestead Leases), Dalgety upon 17 of 25, A.M.A. upon 3 of 9, and A.E.M. upon 2 of 9. Even where the value of a station exceeded its debt it might still be foreclosed (see n. 58).

Of 308 Pastoral Leases in the Western Division in 1900, 105 were registered in the names of pastoral finance companies and 65 in the names of banks. We have evidence of the extent and timing of foreclosures undertaken up to 1905 by three companies. The Australian Mortgage Land and Finance Company began early to set its house in order, followed soon by Australian Estates; but it was not until the drought that Goldsbrough Mort removed the owners of properties of which it had in several cases been "mortgagee in possession". In the drought, too, the former companies carried further the measures they had undertaken in the early 'nineties.

During the 'nineties the Australian Mortgage Land and Finance Company foreclosed at least nineteen of thirty-one pastoralists indebted to it in the Western Division—six in 1891, two in 1892 and eleven in 1898.[48] For this Company there was no half-way; either an owner was left to manage his place without interference or he was foreclosed and his Equity of Redemption acquired. Under no circumstances would it manage the property for him:

> we never disposses a client so long as he properly manages his property. . . . In necessary cases we rarely have any trouble in showing the client that we can manage the property a great deal better than he can himself. We endeavour to avoid the position of mortgagee in possession, a liability as any lawyer will tell you, entailing responsibilities that I feel the company should not undertake.[49]

But there was a little more to it than this. The foreclosures of 1891-2 were followed immediately by amalgamations among the properties concerned: Langawirra with Cuthawarra in the north-west, Tarcoola with Arumpo and Pan Ban in the south-east, and Willandra with Hunthawang in the east. Clearly, even an owner who "properly managed his property" was superfluous when one manager might replace two. There were no further take-overs until 1898, when, with sheep numbers low and pastures deteriorating, five more stations were added to the two in the north-west, and the foreclosure of Canally, followed by Oxley, Poon Boon and Kulkyne, lengthened the chain of properties in the south-east.[50] In other places the state of properties rendered them uneconomical to run. Thus Macpherson of Paddington

[48] The stations were Tarcoola, Arumpo, Pan Ban, Yanda, Kajuligah and Willandra in 1891; Langawirra and Cuthawarra in 1892; and in 1893 Nundoro, Wonnaminta, Mount Arrowsmith, Sturts Meadows, Waverley, Canally, Paddington, Nelyambo, Florida, Angledool and Charlton. Complementary foreclosures in the Central Division and nothern Victoria were also made, among them Oxley and Poon Boon near Hay, Hunthawang near Hillston, and Kulkyne across the Murray River.

[49] Address of the chairman, 29th annual meeting, London (*Australasian Insurance and Banking Record*, 19 June 1893, p. 599).

[50] In some cases, no doubt, owners sought releases from their obligations, but the simultaneity of the foreclosures undertaken implies that such releases would merely have fitted the company's design. Where there was no possibility of working the property in association with others, and it was being managed well, the nominal owner was not released.

was foreclosed and Walker of Neckarboo given the "free" use of the Paddington leasehold as an agistment area for his stock. In the remaining cases of foreclosure the company no doubt "rarely had any trouble in showing the client that it could manage the property a great deal better than he could himself".

Of nine stations involved with it Australian Estates had foreclosed on all but two by 1905. Three had been taken in 1894, two in 1896, and two in 1898.[51] Writing to London in 1899 the General Manager gave as reasons inefficient management by owners and "the unsatisfactory liability involved in respect of being 'Mortgagees in Possession' . . . which opened up all sorts of difficulties and expense in the matter of checking our accounts".[52] When the operations of the Cobar places were rationalized in 1899, their owners had long since been removed for either or both of these reasons. But in the case of Piangobla the suggestion of an official "to combine the management with that of Boolcarrol on the most economical basis" was probably well in mind.[53]

Goldsbrough Mort came to foreclosure slowly.[54] If an owner managed incompetently the company did not foreclose but instead simply installed a manager of its own. The Australian Mortgage Land and Finance Company eschewed the liability of being "mortgagee in possession" and Australian Estates soon retreated from it; but Goldsbrough Mort allowed old ways to die slowly. The owner of Canonbar (near Nyngan) and Meryula (near Cobar) surrendered his management in 1895. The inducement was an "allowance" of £625 per annum, upon which he divided his time between Sydney and Canonbar where he maintained, at the general station expense, a separate establishment away from the homestead and used his legal rights to harass the management at every turn.[55] Although retired in 1893, the owner of Cobham continually resisted movements of sheep to and from his property, causing the company's Chief Inspector to remark the absurdity of a situation in which a squatter could impede the working of a station in conjunction with others when

[51] The exceptions were Tiltargara and Connulpie Downs, the owners of which had died. Since the company could manage these places without interference, it was pointless to carry through foreclosure proceedings, which were especially expensive in such circumstances. Foreclosed in 1894 were Moothumbil, Springfield and Tindarey; in 1896 The Priory and Errebendery; and in 1898 Thackaringa and Piangobla.

[52] 22 June 1899 (A.E.M., London Office 5).

[53] 28 July 1896 (A.E.M., London Office 1). Boolcarrol was a large company freehold near Narrabri. The same official explicitly advocated foreclosure as the means to this end. Proceedings were set under way almost immediately, but not concluded until 1898.

[54] See Appendix I. At first, indeed, properties came to the company. The owners of Bulla Bulla and Eremeran applied for releases, and Sutherland of Thurloo died.

[55] The signature of the owner was required in land matters, stock transactions, the employment of managers and upon the "Certificate of Correctness" of station accounts; in fact, it appears to have been the legal prerequisite of almost every executive act.

his equity in it had disappeared.[56] When, in 1897, the Board resolved that the large West Darling leaseholds should be conducted under a single manager, the solicitors of the company advised that the equities of the owners be first acquired. This was done, and by 1900, when Elsinora was finally taken, each of the heavily indebted West Darling Pastoral Leases had become the property of the company. Economies had, in the meantime, been carried out in other directions. The release in 1897 of the partners on Bulla Bulla was simply a means of reducing the labour force on that station, which had been almost destroyed by rabbits; and on Goolring one partner replaced several in 1898.

In the case of Goldsbrough Mort, foreclosure—or rather the timing of foreclosure—may have been influenced by yet other considerations. In a submission to the Chairman in 1900 the General Manager gave economy of working and avoidance of litigation as reasons for the foreclosures which had been carried through not only in the west but throughout all New South Wales and Queensland.[57] Simultaneously with these, however, valuations of all properties on the books had been made and found to be even more deficient in relation to debts than they had been considered in 1896. It was evident that a fresh approach—the third since 1893—would have to be made to creditors, with a scheme recognizing what the preceding reconstructions had not, namely, the huge losses which had been made upon advances, especially in the west. Playing safe, the Board made very liberal estimates of these losses and decided to approach the Trustees for the Debenture Holders with a scheme for a once-and-for-all write-off to rescue the company from chronic difficulty. The scheme required an Act of the Victorian Parliament to give the write-off legal force. If debts and securities were written down liberally—as in fact they were—later realizations of properties could be expected to yield substantial surpluses. The company was naturally anxious to appropriate such surpluses to itself, and could only do this by becoming legal owner of the assets concerned. This might account for its willingness to pay recalcitrant owners lump sums to expedite the transfer of their Equities of Redemption. Certainly profit upon realization of stations was a significant source of company income in the following decade.[58]

[56] G. W. Moore 21 November 1894 (G.M. & Co., Board Memos. 12/6/94-11/4/96).

[57] J. M. Niall to Chairman of Directors, 20 June 1900 (G.M. & Co., Reconstruction: Niall re Properties 1900).

[58] The discussion has proceeded in terms of gain by realization over and above written-down book values (debts). Opportunities for capital gain by foreclosure of stations whose values exceeded their *gross* debts would have been few in the Western Division where areas had depreciated so greatly. On the face of it, such opportunities should not have existed at all, since the squatters concerned would have been able to seek alternative accommodation. But at a time of severe drought and acute uncertainty about the future of the west it may not have been forthcoming. See *R.C.W.D.* Q.9512 *et seq.* for the case of Killen of Elsinora. Edgar of Thackaringa appears to have been in a similar position (A.E.M. London Office 1, 19 February 1897).

The earlier reluctance to foreclose might be interpreted as the outcome of an attempt—consistent with the use of high depreciation provisions[59]—to restore the equilibrium of the company's capital account. Interest on one class of debentures was non-cumulative but payable if "earned", regardless of any gap between the value of securities held by the company and the sum it had advanced on them. If a station was owned by the company its entire operating surplus entered company income and so was available to pay that interest; if, however, a station was subject to mortgage, only the interest charged entered income, and earnings in excess of it were used to reduce the principal. Consequently, in the effort to rehabilitate the company it is likely that foreclosure was at first eschewed. Yet the relief afforded by such means would have been trifling; mortgage accounts, even in good years, rarely returned interest let alone something in excess of it. Whatever the company may have expected originally, events indicated that some far more drastic step was required. When it began systematically to foreclose properties in the late 'nineties it appears to have done so in fair certainty that the creditors would accept its new proposals.

Conclusion

Well before its climax in 1902 the drought brought home to finance companies the extent of losses upon their western investments. In some measure, of course, they had been the victims of circumstance: no one in 1880 could have foreseen the consequences of the rabbit. Nevertheless, in the late 'seventies and early 'eighties they had joined the squatter in his overestimation of the western country.

But losses were of the past, for shareholders and creditors to recognize and divide. Drought was of the present, and companies—squatters by circumstance rather than choice—lessened its impact by means which were not available to the individual pastoralist. The significance of growing company influence in the west was that, knowledge being imperfect and its communication slow and inaccurate, bringing together many stations under one guidance made it easier to develop a more effective relationship between the pastoral enterprise and its arid environment.

In terms of risk the properties of some companies were better located than those of others, although more likely by accident than design. It would be a great mistake to assume that companies always knew what they were doing when they first took up accounts in the west; it is clear, however, that they had rather more idea when they subsequently foreclosed upon many of them.

For all companies, whatever their circumstances, the Western Lands Act must have been a consolation.

Australian National University. NEVILLE CAIN

[59] The company used these provisions to keep its creditors at a certain distance; the cash retained helped to extend its lucrative wool-broking connection and provide for essential investment outlays on stations.

Appendix I : Certain details of ten stations

Type of tenure‡	*Area in 1900 (acres)*	*Flock in 1900*	*Debt 1896*	*Interest in suspense 1896*	*Company valuation 1896*	*Date of foreclosure*	*Company valuation 1900*
			£	£	£		£
Bulla Bulla P.L. ..	128,000	3,130	22,202†	—	3,107	1897	2,252
Cobham P.L.	434,686	46,017	92,610	17,053	43,705	1898	25,670
Corona P.L.	1,653,060	55,000	179,241	26,554	117,316	1899	52,423
Eldorado H.L.	81,890	10,000	12,939	—	16,674	—	7,913
Eremeran P.L.	286,540	42,588	220,828†	—	110,266	1897	46,732
Gnalta-Packsaddle P.L.	786,040	20,000	149,645	21,048	76,470	1898	25,058
Goolring H.L.	58,870	6,000	16,312	—	16,971	—	5,038
Pirillie* P.L.	152,392	8,534	59,234	—	35,401	1887	9,405
Talowla H.L.	61,341	5,913	18,755	—	25,355	—	7,519
Elsinora-Thurloo Downs* P.L. ..	726,488	48,099	187,837	21,000	101,974	1900 & 1897	60,501

*Elsinora-Thurloo includes "Osaca" Block throughout, and "Youngerina" Block in 1896. Thereafter "Youngerina" was worked with "Pirillie".

†Write-offs in 1894 added back—£18,201 in the case of Bulla and £110,000 in that of Eremeran—to give an idea of the total amount which the Company had put into these stations. There were occasional write-offs in the late 'eighties—in which Pirillie figured more than once—but these have been ignored in the Table above. The Bulla and Eremeran write-offs included interest in suspense; thus the absence of that item for these stations in 1896.

‡Pastoral Lease or Homestead Lease.

*Appendix II : Flocks on ten stations 1896–1905**

	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905
Sheep at beginning ..	497,203	458,024	466,079	431,981	292,827	308,874	255,336	208,084	215,354	262,574
Lambing	101,099	105,611	89,255	57,075	86,869	40,934	18,203	78,727	83,585	59,371
Purchases	92,374	38,502	31,540	13,290	61,848	37,621	37,712	21,769	15,088	4,940
Sales	86,935	78,666	92,339	76,614	84,258	50,172	48,518	52,193	33,543	84,007
Rations	7,213	7,871	8,087	6,189	6,073	5,760	5,114	3,784	3,297	3,509
Mortality	138,504	49,521	54,467	126,716	42,338	76,161	49,535	37,249	14,613	31,723
Sheep at close	458,024	466,079	431,981	292,827	308,874	255,336	208,084	215,354	262,574	201,646
Average sheep carried (No. at beginning plus No. at close, divided by 2)	477,613	462,051	449,030	362,404	300,850	282,105	231,710	211,719	238,964	232,110
Mortality % No. / (av. sheep)	29·0	10·7	12·1	35·0	14·1	27·0	21·4	17·6	6·1	13·7
Lambing % No. / (av. sheep)	21·2	22·9	19·9	15·7	28·9	14·5	7·9	37·2	35·0	25·6
Land area ('ooo acres)	4,371	4,370	4,397	4,460	4,460	4,422	4,417	4,417	4,417	4,417
Sheep/acre	1:9	1 : 9	1 :10	1 : 12	1 : 14	1 : 17	1 : 25	1 : 25	1 : 25	1 : 25
Sheep in Western Division ('000)	10,630	9,882	8,920	6,211	5,365	5,523	3,626	3,980	5,124	5,787
Sheep in New South Wales ('000)	48,011	43,952	41,248	36,214	40,021	41,857	26,649	28,659	34,527	39,507
Aveage sale price of sheep (10 western stations)	5/-	5/-	4/3	6/-	8/3	8/-	8/-	12/-	10/-	9/-

*There is little or no useful information about the sex and age composition of these flocks, ewes put to ram, sheep shorn, etc., etc.

NOTES

F. R. E. MAULDON, 1891-1961

The death of Frank Mauldon on 14 February last was learned with sorrow by a wide circle of friends in Australia and overseas. Many people might have been asked to write his obituary notice for the *Economic Record*, and I feel honoured that the editors should have asked me to perform this sad task. Needless to say I have sought the assistance of others in the collection of facts, and I wish to acknowledge in particular the help of Mr. Lascelles Wilson of the University of Sydney, Mr. G. A. Weller and Mr. F. H. Johnston of the University of Melbourne, Dr. Merab Tauman of the University of Western Australia, and Dr. W. E. G. Salter of the Prime Minister's Department, Canberra.

My daily contacts with Frank Mauldon were confined to the five years 1930 to 1934 when we were colleagues in the Faculty of Commerce in Melbourne. When I arrived in January, 1930, to take charge of the teaching of economic history, Douglas Copland, Gordon Wood, Frank Mauldon and L. F. Giblin were the four cornerstones of the faculty. L. F. Giblin had arrived just before me to take up his post of Ritchie Professor of Economics, a research chair with strictly limited participation in teaching. Giblin was just in the process of settling in, so Copland, Wood and Mauldon were in fact the only full-time teachers in the faculty before my arrival, though they were fortunate in being able to call on a wealth of specialised talent in Alexander and Garrett Fitzgerald, Orwell Foenander, George Anderson, the late Eric Ingram, Alfred Weller, Gordon Whitlam and John Eddy. The thing that immediately impressed me as a newcomer was the happy atmosphere and unity of purpose of this small faculty which was already beginning to make such an impact on Australian economic policy, and was to have such an important influence in the near future.

Frank Mauldon was the third of the trio mentioned above to join the faculty which Copland had in effect founded in 1925. Gordon Wood had come from Adelaide to join him soon afterwards, and Frank Mauldon was recruited from Newcastle where he had been resident tutor during the years 1921 to 1925 for the Tutorial Classes Department of the University of Sydney. He took up duty in Melbourne in March, 1926. His early education was in the Petersham Public School, Sydney Boys' High School and the University of Sydney where he graduated Bachelor of Arts in 1915.

Mauldon had to get his higher education by his own efforts. He left school at the age of seventeen after having passed the former University Junior Public Examination in December, 1908, and the New South Wales Public Service Examination for a cadet draftsman. He joined the Registrar-General's Department and by part-time

studies gained his matriculation at the University of Sydney in 1910. Shortly after this Mauldon's father died, and as he was the eldest of the family there was no possibility of full-time university studies. He gained his Arts degree by part-time studies, and at the same time began to study for the degree of Bachelor of Economics. In economics he found his real interest and gained distinctions in this subject.

Then came the interruption of war service during which he saw service in France and Belgium as a Y.M.C.A. officer attached to the Australian Imperial Forces with the honorary relative rank of Captain. Mauldon was attached to the 7th Infantry Brigade in France and Belgium and was wounded by shell fire at Sailly-le-Sec in June, 1918. When fighting finished he took the opportunity to attend the London School of Economics during 1919 to continue his studies. On his return to Sydney early in 1920 the University of Sydney gave him credit for this work and conferred on him the degree of Bachelor of Economics.

As so many other university teachers have done, Mauldon got his early teaching experience in the field of adult education. The thing that I always remember so vividly about him as a teacher was his capacity to apply his theory to everyday life and to practical situations. Although I am not qualified to pass such a judgment I have always had the impression that Mauldon's strength as an economist was in the empirical application of his knowledge, rather than in the refinement of economic theory. He was always very successful in holding the attention of his students because he had the capacity to deal with matters which were of vital interest to them. His first publications came naturally from the environment in which he worked. In 1925 he produced his thesis *A Study in Social Economics: The Hunter River Valley*. This was the first integrated study of the resources and of the social and industrial organisation of this area. For this he was awarded the degree of Master of Economics by the University of Sydney. His next important work also arose from his interest in this particular area, his studies on the coal industry; and in 1928 he published an article in the *Economic Record* on "The Problem of Australian Coal".

Soon after Mauldon came to Melbourne he pushed his interests into another field and an article on "Labour Mobility in Australian Industry" also appeared in the *Economic Record* in 1928. But the coal industry continued for some time still to be the main centre of his interest, and in 1929 he published his major work up to that point, *The Economics of Australian Coal* (M.U.P.). It was primarily for this work that he was awarded the degree of Doctor of Letters by the University of Melbourne. His subsequent published work during his period in Melbourne continued to reflect this practical interest in contemporary economic problems. In his teaching he was mainly concerned with the study of industrial organisation and he naturally became interested in the controversies current about 1930 concerning the extent to which rationalisation in industry was responsible for unemployment and depression. In 1931 he published his article on

"The Doctrine of Rationalisation" and in 1932 another on "The Rationalisation Movement and Australian Industry", both in the *Economic Record*. Another piece of work that grew directly out of his teaching interests and the problems of training students, was his book on the *Use and Abuse of Statistics* which he produced primarily for the use of his own students in 1933. I well remember that this very useful booklet stood generations of students in good stead, and it went through many successive revisions and new editions.

The publication of *The Economics of the Australian Coal Industry* won for Mauldon the award of the Harbison-Higinbotham Prize in 1929. About the same time he was also awarded a Rockefeller Foundation Fellowship which enabled him to spend most of the year 1930 working in the United States, mainly at Harvard. His research was mainly into trends in industrial organisation, and he was able to extend his visit to embrace Canada and Europe. But though his main teaching and research interest was in industrial economics, he also regularly gave a series of lectures on methodology in economics which was an important part of the course. On his return to Melbourne he contributed to the *Economic Survey of Australia (1931)*, published in the Annals of the American Academy of Political and Social Science. The period of study leave in 1930 gave Mauldon much material and stimulus for his studies on rationalization in industry which appeared in the *Economic Record* and were the subject of a paper to Section G at the Sydney meeting of the Australian and New Zealand Association for the Advancement of Science in August, 1932. At the Melbourne meeting in January, 1935, he contributed a paper in collaboration with Miss Jean Polglaze on "Manufacturing in the Depression". Mauldon was always a staunch supporter of A.N.Z.A.A.S.; he regularly attended its meetings and made his contribution to its proceedings.

In the course of 1935 while I was abroad on study leave Frank Mauldon was appointed to the Chair of Economics in the University of Tasmania. When I returned to Melbourne at the beginning of 1936 he had taken up his new position in the previous September, and thereafter he continued to show the same interest in the practical problems of Tasmania as he had previously shown in those of the Hunter River Valley, and of the Australian economy generally. The post of Professor of Economics in the University of Tasmania also carried with it at that time the task of advising the Government of Tasmania on economic problems. He was also one of three members of the Permanent Advisory Committee on Public Finance appointed by the Government of Tasmania. This was particularly important in view of the annual representations which the Government of Tasmania made to the Commonwealth Grants Commission for a grant-in-aid to the State and in its approaches to the Loan Council. The thoroughness that Mauldon always devoted to his work was well illustrated over the next few years by his studies of the Tasmanian economy. Between 1936 and 1939 Mauldon produced *Economic Trends in Tasmania 1931-32 to*

1935-36, The Tasmanian Economy 1936-37, 1937-38. In this latter study he was assisted by his colleague Mr. D. L. Anderson, and in a study of *Employment in Tasmania and Its Seasonality* by Mr. H. J. Exley. A further study of "Mechanisation in Australian Industries" was also published with assistance from D. L. Anderson and M. W. Marks. It was in Tasmania too that Mauldon began his studies on regional income which he was to develop later to a level equalled in few if any other centres.

In 1939 Mauldon left Tasmania to take up the post of Economist and Director of Research in the Commonwealth Bureau of Census and Statistics in Canberra. He remained in this post for about two years before going to the Chair of Economics in Western Australia. The short period in which Mauldon was a Commonwealth public servant in Canberra is one in which I saw him very little. With the outbreak of war travel became difficult except for people on official business and I did not fall within that category. As a public servant, moreover, Mauldon's work in this period is of a more anonymous character; it appeared in government publications but with little acknowledgement of his actual contributions. But we do know that in this period he played a major rôle in preparing the Statistician's Report on the 1933 Census. He also served as Chairman of the Commonwealth-State Committee on Youth Employment. It seemed to me, however, as it must have done to many of his former colleagues, that in many ways it was a great waste of talent that Mauldon should cease to be an academic teacher and to be occupied in research and administration alone. It was therefore no surprise to us, and indeed a matter of great pleasure, when we learnt of his appointment to the Chair in Perth. We felt once again that his great influence as a teacher would have its fullest scope, while one could be quite certain that he would continue research and make valuable contributions in the field of economic policy and management.

During the war years Mauldon was, of course, fully occupied as were his fellow economists in many other fields. It was a period which left little time for publication and here again Mauldon addressed himself to the practical problems that had to be faced. In 1941 appeared his work *Towards Economic Reconstruction.* In Western Australia, as in Tasmania, he played an important rôle assisting and advising the State Government in economic matters and he became Chairman of the Western Australian Industry Expansion Commission. My meetings with him after his move to Perth were mainly through visits which he made to the Eastern States on university or government business. However, after the war with the establishment of the Social Science Research Council we had opportunities of meeting more frequently through the means of this body of which he was a Foundation Member.

Mauldon held the Chair of Economics in Western Australia until his retirement in 1958, when he became an Emeritus Professor of the University. Although my contacts with him during this period were

not very frequent, I had the impression that this was perhaps the happiest period of his working life, in which he reached fulfilment and a sense of achievement. His work in the University of Western Australia gave him full opportunity to exercise his influence as a great teacher and a very competent organiser. I gather from generations of his students that his teaching continued to possess the "down to earth" quality which was its great virtue in the period in which I knew him in Melbourne. The study of economics prospered and grew under his guidance, and he is remembered with affection and respect by both students and colleagues.

The task that faced Mauldon when he took up his post in Perth was no easy one. The Chair of Economics had been vacant since 1937 when A. G. B. Fisher left to take the Chair of International Economics at Chatham House, London. The department had been kept going after J. O. Shearer left in August, 1938, by the sterling work of Dr. Merab Tauman (née Harris) in conditions of serious under-staffing. It was impossible to remedy this situation till after the war, but since then there has been notable development. Frank Mauldon was an ideal person for pioneering work, and this was eventually recognised after long and persistent efforts by the creation of the Faculty of Economics in 1955. The work done by Mauldon, his colleagues, and their students has been warmly recognised not only in Australia but overseas. In 1951 with the aid of a Carnegie Corporation grant Mauldon was able to take study leave and revisit North America and Europe. This enabled him to renew friendships which he had established on previous visits overseas, and to gain new stimulus. He returned with the conviction that a modern economist needs to be equipped with mathematics, and shortly afterwards introduced a course in Mathematical Economics.

On his retirement family interests drew him for a year to Melbourne, where he was able to renew his friendships and do some teaching in his old university. But already he had contracted the disease which was finally to prove fatal. He faced the last painful years with his characteristic courage and cheerfulness, and few of his friends or colleagues were aware of his sufferings.

Though Mauldon's work was mainly in universities his interests were always wide and sympathetic. He began his working career as a public servant, and he always retained his interest in problems of public administration. He helped to found the Victorian Group of the Institute of Public Administration, and if I remember rightly he lectured in the subject in the University of Melbourne. His interest in the foundation and development of the Economic Society of Australia and New Zealand was a natural professional interest, but it was an interest that was real and sustained. He occupied at times the position of vice president and president of his branch, and always did his share—and more. As Dr. Merab Tauman has remarked to me, when teaching and administrative loads were excessive he always took "the heavy end". He had a life-long interest in his Church and in the Young Men's Christian Association, and helped them in the same

practical way. His experience in the Y.M.C.A. during World War I led to an invitation in 1922 to write a summary account of the Association's activities in all theatres for the Official History of the War 1914-18. This was done expeditiously and thoroughly as was his custom. In his teaching and research he showed the same capacity to turn his interest to new fields. So we find his presidential address to Section G at A.N.Z.A.A.S. in August, 1947, is "The Consumer in a Planned Economy" which was published in the *Economic Record* in June, 1949. His many contributions to the work of the *Economic Record* over the years are not comprehensively listed in this article but they show the wide range of his interests. It must have given him particular pleasure to write for it the article on "Gordon L. Wood; An Appreciation" (Vol. 30, 1954) and with G. A. Weller, "Sir D. Copland and the Foundation of the Economic Society" (Vol. 36, 1960), for Wood and Copland were two of his oldest colleagues.

In any assessment of Mauldon's contribution to Australian academic life and to economics, I would stress his greatness as a teacher, an organizer, and as a human person. His main contribution was not in the field of economic theory but in the investigation of economic problems. In the development of his department, however, he sought to provide teaching in the most recent and most advanced economic theory, and to ensure that his students received a sound and broadly based training. And above all he was a "Christian gentleman" who really sought to live up to his principles; tolerant, friendly and humane, he nevertheless had the highest standards and ideals. It is no wonder that he is remembered with affection, respect and gratitude by his colleagues and students everywhere. No man could wish for a better memorial.

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ON TEACHING AND TERMINOLOGY

Inevitably an increasing emphasis will be placed on teaching in our Universities. This will concern Economics as much as any other subject. Not only is the student population going to expand rapidly, but the subject itself is "widening" and "deepening" at an accelerating rate.

Teachers of the "dismal science" must have often reflected upon the paucity of imaginative terminology and the poverty of vivid imagery in a subject whose processes, for the most part, cannot be seen, but only pictured in the imagination. With a few notable exceptions, our terms consist either of those we have taken over from the work-a-day business world and to which we have applied our own special connotation or of jargon which is often pedantic, usually polysyllabic.

For the student, a succinct and vivid terminology has two inestimable advantages. First, it creates a conceptual image of the process or relationship described. Second, it provides a system of pegs upon which to hang the larger ideas. Perhaps a couple of examples from present usage may better illustrate this. In my experience, the term "backwash effect" immediately calls to students' minds the whole process and implications of income propagation via the international trade multiplier. Again, it is difficult to imagine a better description of the relationship between and reconciliation of the cyclical and secular consumption functions than is summed up in the "ratchet effect". Even so, economics has no term quite as memorable as, for example, the Doppler effect.

Because it is difficult to introduce new terms unilaterally, I want to place on record a few which I have found particularly effective. It is also hoped that this may encourage others to contribute from their experience. The terms I would recommend are—

The Dinosaurus Effect to explain the ultimate upward-turning of the long-run AC curve due to the bone-headedness of bureaucracy and the creaky communications of the over-sized unit—or the "losses due to growth beyond the scale at which management can exercise the most efficient control, or due to the rigidities and inflexibilities which creep into large organizations and prevent continuous and successful adaptation to changing circumstances."[1]

Schizophrenia of the Entrepreneur to describe the splitting of the corporate entrepreneurial personality into "owners" on the one hand and "organizers and controllers" on the other.

Dockerism to describe the ever-growing practice of paying tax-free allowances far in excess of norminal salary, the provision of gold-plated Daimlers on advertising account, and so on. (After all, we should not deny the Dockers their usefulness, and we have the precedent in Captain Boycott. The term "fringe benefits" which is widely

[1] E. A. G. Robinson, *Monopoly*, p. 141.

used at present seems to me inadequate in this connexion, since it suggests something peripheral and minor rather than something which is quantitatively of major significance.

The Bookmaker Effect to describe the tendency of large amounts of capital to swallow up small amounts of capital.

By association of ideas with the last item, I might add here that the relationship between the size of one's outlay (compared with total turnover) on the totalizator and the price received provides an illustration of the oligopoly/non-oligopoly criterion which students grasp at once.

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CONCENTRATION OF EMPLOYMENT IN AUSTRALIAN FACTORIES, 1938-9 TO 1956-7

The following figures are of some interest in that they supplement earlier work by Haddon-Cave[1] which covered the inter-war and war period from 1923 to 1943. Like the earlier study, our data is derived from the Secondary Industries Bulletins. We too are interested mainly in tracing changes in relative size distributions rather than absolute factory sizes, and we too rely on employment as a measure of size. Our measure of concentration is, however, considerably different. Rather than use a single index which concentrates attention on only one part (the upper tail) of the distribution, we have tried to summarise the whole (per centage) distribution by selecting (quite arbitrarily) three intervals covering both tails and a middle region.

The method employed was to compute cumulative percentages for both factories and hands employed and to interpolate for our selected ranges as if we were reading off a Lorenz curve in which straight lines were used to connect observation points. Rather than draw graphs for each individual class, however, we used the following arithmetic formula:

$$Z = h_{c-1} + \left(\frac{X - k_{c-1}}{k_c - k_{c-1}}\right)(h_c - h_{c-1})$$

where k_c is the percentage of establishments less than c in size; h_c is the percentage of hands employed in factories less than c in size; X is the nominated percentage of factories marking one end of the chosen size range; and Z is the required percentage of persons employed in "up to" the nominated percentage of factories.

The figures need not be discussed in detail, though the following points deserve to be brought out:

[1] C. P. Haddon-Cave "Trends in the Concentration of Operations of Australian Secondary Industries 1923-1943", *Economic Record*, Vol. XXI, No. 40, June 1945.

PERCENTAGE OF HANDS EMPLOYED IN THE LOWER 25%, MIDDLE 30%, AND TOP 5% OF FACTORIES BY CLASS OF INDUSTRY FOR VARIOUS YEARS

Source: Secondary Industry Bulletins.

		1938–39	1945–46	1948–49	1952–53	1956–57
I. Treatment of Non-Metalliferous Lime and Quarry Products	0– 25%	3·9	3·6	4·3	3·9	3·5
	40– 70%	12·9	12·0	13·5	16·3	12·6
	95–100%	44·6	52·1	47·9	50·9	53·4
II. Bricks, Pottery, Glass, etc.	0– 25%	3·0	2·9	2·9	2·6	2·1
	40– 70%	17·8	15·4	16·1	15·9	15·9
	95–100%	40·4	41·8	39·1	38·2	41·8
III. Chemicals, Dyes, Explosives, Paints, Oils, Grease	0– 25%	2·1	1·9	1·8	1·5	1·3
	40– 70%	10·6	9·8	9·6	9·0	8·0
	95–100%	43·3	36·5	35·3	41·5	38·8
IV. Industrial Metals, Machinery, Conveyances	0– 25%	2·1	1·6	1·9	2·1	2·2
	40– 70%	7·5	6·9	7·0	7·7	7·8
	95–100%	62·0	60·3	64·6	65·2	65·7
V. Precious Metals, Jewellery, etc.	0– 25%	3·9	4·9	5·2	6·0	6·2
	40– 70%	14·1	17·3	17·4	17·0	19·3
	95–100%	39·9	35·5	38·3	37·7	30·1
VI. Textiles and Textile Goods (not dress) ..	0– 25%	1·4	2·0	1·7	1·4	1·2
	40– 70%	10·4	12·3	11·6	11·5	10·0
	95–100%	20·9	23·7	25·6	27·9	27·6
VII. Skins and Leather (not clothing and footwear	0– 25%	4·0	4·3	3·3	2·8	2·9
	40– 70%	16·5	15·6	15·1	15·4	13·2
	95–100%	34·6	35·0	36·3	38·1	38·6
VIII. Clothing (except knitted)	0– 25%	1·9	2·3	2·4	2·8	2·8
	40– 70%	13·9	10·3	16·5	16·3	14·6
	95–100%	39·4	35·7	34·9	37·6	39·5
IX. Food, Drink and Tobacco	0– 25%	3·2	2·9	3·1	3·1	3·0
	40– 70%	11·0	10·4	10·5	10·0	9·2
	95–100%	55·8	52·4	51·6	54·3	55·9
X. Sawmills, Joinery, Boxes, etc., Wood, Turning and Basing..	0– 25%	4·7	4·1	4·6	5·1	4·8
	40– 70%	18·0	18·4	17·9	18·9	18·1
	95–100%	32·4	32·9	32·0	31·1	32·5
XI. Furniture of Wood, Bedding, etc. ..	0– 25%	3·7	4·3	4·3	4·9	4·7
	40– 70%	17·7	17·2	16·9	17·5	15·5
	95–100%	33·4	30·5	31·2	30·6	34·2
XII. Paper, Stationery, Printing, etc. ..	0– 25%	2·5	2·3	2·4	2·1	1·9
	40– 70%	12·4	11·9	11·8	12·2	11·6
	95–100%	55·9	47·7	47·7	48·7	49·9
XIII. Rubber	0– 25%	1·9	2·0	1·8	2·0	1·6
	40– 70%	4·2	6·6	6·2	7·3	5·9
	95–100%	82·8	76·1	77·9	72·7	72·8
XIV. Musical Instruments	0– 25%	5·7	4·2	2·5	2·5	2·3
	40– 70%	18·5	18·5	11·8	12·9	9·9
	95–100%	37·7	46·2	60·4	56·3	60·9

XV. Miscellaneous Products	0– 25%	3·1	2·8	2·8	3·1	2·7
	40– 70%	13·2	13·6	14·0	13·6	12·3
	95–100%	36·4	42·1	43·2	45·1	48·2
XVI. Heat, Light and Power	0– 25%	2·6	2·1	1·7	1·2	1·0
	40– 70%	6·6	7·0	6·8	5·6	5·1
	95–100%	67·7	63·6	63·6	61·8	45·1
All Groups	0– 25%	2·4	2·1	2·3	2·5	2·4
	40– 70%	10·1	10·2	10·6	9·8	9·3
	95–100%	52·5	54·1	53·3	55·2	57·0

(i) The continued trend towards greater concentration, which Haddon-Cave traced, continues into the post-war period. This is borne out by the all-groups figures which, however, give the impression that the increase in concentration between 1938-9 and 1956-7 is not very great. In view of the already high degree of concentration (also noted by Haddon-Cave) in the base year, this increase in concentration might still be regarded as "significant". In terms of Haddon-Cave's index of concentration, 1956-7 would stand at 1860 compared to 1510 in 1942-3 and 1000 in the base year 1923-4.

(ii) The acceleration in the trend towards concentration during the war years, which Haddon-Cave claims, turns out, we feel, to have been more of a wartime phenomenon than he thought. Our figures are quite suggestive of a reversal, between 1945-6 and about 1948-9, say, to a size distribution not far from the pre-war pattern, though still showing a trend.

(iii) Aggregates conceal wide variations among components. To throw some light on this we computed the figures for major statistical classes. Comparing the years 1938-9 and 1956-7, we note that classes, XIV, X XV, VI, I, VII, IV, are becoming more concentrated; classes II, XI, VIII, and IX seem to have preserved much the same size structure; whilst classes XIII, III, XII, V, and XVI appear to have become rather less concentrated. In general however, we feel that these classes are still too heterogeneous for the patterns revealed to be anything more than just suggestive. An attempt to analyse the factors responsible for such trends would require the definition of more useful sub-classes.

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PRICING POLICIES AND EARNING RATES*

1. The purpose of this note is to show that in a period of rising costs, historical-cost pricing policies mean lower real earning rates than those existing when costs were constant and those which would be obtained with replacement-cost pricing, whether physical sales are constant or rising; to argue that the real earning rates of certain United Kingdom companies[1] fell in the years of the period 1949-53 when costs were rising, even though there is some evidence that the percentage mark-ups on costs were lengthened over the same period, so that apparent earning rates were maintained or increased; and that historical-cost pricing policies could explain these falls. The apparent earning rate is defined as the ratio of accounting profit to the historical cost value of funds employed, that is, the historical cost value of net assets. The real earning rate is defined as the ratio of current income[2] to the current value of funds employed, that is, net assets valued at current replacement prices. If production and investment decisions are based on apparent earning rates, low real earning rates could lead in the long run to misallocation of resources, and distributions based on accounting profit could lead to a deterioration in the financial structures of the companies concerned.[3]

2. There are three pricing policies relevant to the discussion—replacement-cost pricing, F.I.F.O.-cost pricing and average-cost pricing. As a first approximation replacement-cost pricing is pricing by adding a constant percentage margin to costs, including stocks valued by the L.I.F.O. method, which are regarded as approximations to current replacement costs. F.I.F.O.-cost pricing is the process of marking-up costs, including stocks valued by the F.I.F.O. method, and average-cost pricing is the process of marking-up costs, including stocks regarded as coming from a common pool. The latter two methods are historical-cost pricing policies; all are cost-determined pricing

* The author is indebted to the members of the Departments of Economics and Commerce, University of Adelaide, for their comments on a draft of this note, and to Mr. R. D. Terrell for help with the mathematical appendix.

[1] The companies are the quoted public companies included in Groups 1-16 of Table B, pp. 22-23 of *Company Income and Finance 1949-53* (London: C.U.P., November, 1956), referred to below as the manufacturing companies, and the quoted public companies in Groups 2 (Chemicals) and 9 (Wool), pp. 26-27 and pp. 40-41 of the same publication, referred to below as the chemical and wool companies, respectively.

[2] Current income is accounting profit less stock appreciation and a depreciation adjustment which is equal to the difference between depreciation allowances valued at current replacement costs and historical cost depreciation.

[3] The historical-cost pricing hypothesis was used originally by Professors Mathews and Grant to explain the low real earning rates of Australian companies over the period of the post-war inflation, (see J. McB. Grant and R. L. Mathews, "Accounting Conventions, Pricing Policies and the Trade Cycle," *Accounting Research*, Vol. 8, No. 2, April, 1957, pp. 145-64 and *Inflation and Company Finance* (Sydney: Law Book Co. of Australasia, 1958), especially Chapter X). In this note, the hypothesis is generalized in order to include the cases of changing physical sales and changing percentage mark-ups.

policies. The main empirical study in the United Kingdom covering the period 1949-53 suggests that the pricing policies of manufacturing companies were mainly cost-determined and that the relevant costs were either F.I.F.O. or average costs, that is, historical costs.[4] The effects of variations in the mark-up, due to changes in demand conditions, are examined later in the note. For the moment it will be assumed that prices are cost-determined and that the percentage mark-up is constant. As F.I.F.O.-and average-cost pricing are the most general methods of stock valuation used in the United Kingdom,[5] and if prices are cost-determined, it seems a reasonable inference that most manufacturing companies would use historical-cost pricing policies. If they do, when costs start to rise, real earning rates fall.

3. Consider an economy which uses historical-cost pricing and in which physical sales each stock-turnover period are constant. Suppose also that the purchases of stocks for sale are the only costs of the firms in this economy. If the prices of these stocks rise at a constant percentage rate, real earning rates (in this case, current incomes as proportions of the current values of funds employed in stocks) will fall in the stock-turnover period following the start of the rise in costs and then remain constant at this lower level. If costs rise at an increasing percentage rate, real earning rates will fall continuously. If costs rise at a decreasing percentage rate, real earning rates will be *less* than apparent earning rates, but will themselves rise each stock-turnover period. Apparent earning rates (in this case, accounting profits as proportions of the historical-cost values of funds employed in stocks) will follow the same patterns as those of real earning rates, that is to say, they will fall to a lower level and then remain constant if costs rise at a constant percentage rate; they will fall continuously if costs rise at an increasing percentage rate. However, the apparent earning rate of any period always will be greater than the real earning rate of the same period.[6]

4. If physical sales as well as costs rise, these results still hold. When costs are rising and F.I.F.O.-cost pricing is used, real earning rates can be maintained only if physical sales actually *fall*. If average-cost pricing is used, the falls in real earning rates will not be as great as with F.I.F.O.-cost pricing, but they will still occur. However, if replacement-cost pricing is used and if physical sales are constant each stock-turnover period, real earning rates will be maintained, despite

[4] See J. C. R. Dow, "Analysis of the Generation of Price Inflation. A Study of Cost and Price Changes in the United Kingdom, 1946-54", *Oxford Economic Papers* (New Series), Vol. 8, No. 3, September, 1956, especially p. 252; p. 263; pp. 277-81. J. R. Parkinson has suggested that over the period 1950-52, "the pricing policies of producers fell somewhere between the historical and current cost method." (See J. R. Parkinson, "The Terms of Trade and the National Income 1950-2", *Oxford Economic Papers* (New Series), Vol. 7, No. 2, June, 1955, p. 181.)

[5] See Central Statistical Office, *National Income Statistics: Sources and Methods*, (London: H.M.S.O., 1956), p. 310.

[6] These results and those of paragraphs 4-8 are established in the mathematical appendix.

the rises in costs. If physical sales are increasing, real earning rates will fall, but only slightly.[7]

5. Obviously increased mark-ups (even if on F.I.F.O. or average costs) *could* prevent real earning rates falling. The apparent and real earning rates of the manufacturing, chemical and wool companies,[8] estimates of the mark-ups used over this period and of stock appreciation, are shown in Table 1. The apparent earning rates are the accounting profits before depreciation of the companies, divided by the historical cost values of funds employed in stocks; the real earning rates are their current incomes, also before depreciation, divided by the current values of funds employed in stocks.[9] These ratios approximate (very roughly) to the apparent and real earning rates of the models in paragraphs 3 and 4 and in the mathematical appendix. In effect, they are average values of the apparent and real earning rates on stocks for the stock-turnover periods of the years concerned.[10] The estimates of the mark-ups are the annual gross trading profits of *all* companies in the industries concerned, divided by their annual costs.[11] These are annual averages of the mark-ups for the stock-turnover periods of the years

[7] The magnitude of these falls and whether they continue or not, depend upon the rates of increase of physical sales each stock-turnover period. For example, with a mark-up of 15% and with physical sales increasing at a constant percentage rate of 10% each stock-turnover period, the real earning rate would be over 14%, whatever the rate of increase of costs.

[8] See footnote [1] above.

[9] The historical cost value of funds employed in stocks is the simple average of the balance sheet values of opening and closing stocks each year. The corresponding current value is the simple average of opening and closing sttocks expressed in the average prices of the years concerned. The estimates of stock appreciation used to derive the estimates of current income, (which are shown in Table 1), were calculated as follows. The opening and closing stocks of the companies were divided into three categories—raw materials and fuel, work-in-progress and finished products. Indexes of the prices of each category were prepared, and the opening and closing values of each category were valued in the average prices of the years concerned. The difference between these was stock accumulation, and stock appreciation was the change in the value of each category less stock accumulation. The sources for these calculations were the indexes of wholesale prices (published in the United Kingdom *Board of Trade Journal*), *The United Kingdom Census of Production for 1951*, and *Company Income and Finance 1949-53*.

[10] But see paragraph 6 below. Ideally, the apparent earning rates should be accounting profit after depreciation divided by the historical cost values of net assets, and the real earning rates should be current income net of capital consumption valued at current replacement cost divided by net assets valued in current prices. Because of the difficulties of estimating capital consumption so valued and fixed assets in current prices, and because the analysis above is in terms of simple models which assume investment of funds in stocks only, the latter estimates are not shown here. For what they are worth, they do show the same pattern as those in Table I.

[11] The mark-ups of the manufacturing companies are from J. C. R. Dow, op. cit., Table X, p. 280; those of the chemical and wool companies are from the relevant appendices in 95th-99th *Reports of the United Kingdom Commissioners of Inland Revenue*. These sources show figures of gross trading profits as percentages of turnover. The order of magnitude of the mark-ups used can be obtained by expressing these ratios as proportions of costs, that is, turnovers net of gross trading profits. These estimates contain a downward bias. The figures of costs in the denominator include selling and non-factory administrative costs which, in practice, are excluded from the figures of costs to which mark-ups are applied.

concerned. As these figures include figures for non-quoted public companies, they are approximate estimates only of the mark-ups used by the three groups of quoted public companies.

TABLE 1

APPARENT AND REAL EARNING RATES ON STOCKS, ESTIMATED MARK-UPS AND STOCK APPRECIATION, 1949-53.

(All quoted public companies in the United Kingdom manufacturing, chemical and woollen and worsted industries.)

Manufacturing companies		*1949*	*1950*	*1951*	*1952*	*1953*
Apparent earning rate on stocks[1]	%	49·5	55·8	55·2	*	*
Real earning rate on stocks[2] ..	%	44·5	32·3	43·0	*	*
Mark-up[3]	%	11·2	12·5	12·7	*	*
Stock appreciation[4]	£m	80	416	216	*	*
Chemical companies						
Apparent earning rate on stocks[1]	%	48·4	58·1	55·0	(39·2)*	52·3
Real earning rate on stocks[2] ..	%	47·0	48·3	39·0	(34·2)*	49·9
Mark-up[3]	%	10·6	13·6	12·9	(11·1)*	14·4
Stock appreciation[4]	£m	4·0	21·0	45·1	(15·2)*	6·8
Wool companies						
Apparent earning rate on stocks[1]	%	43·3	43·3	(24·8)*	(22·9)*	34·2
Real earning rate on stocks[2] ..	%	28·9	−25·4	(52·9)*	(35·5)*	26·1
Mark-up[3]	%	12·7	13·5	(8·1)*	(10·4)*	8·8
Stock appreciation	£m	5·9	39·2	(−28·1)*	(−6·7)*	4·4

* Years with negative stock appreciation or recession when the above models do not apply.

[1] Accounting profit before depreciation as per cent of the simple average of the balance sheet values of opening and closing stocks.

[2] Current income before depreciation as per cent of the simple average of opening and closing stocks valued in average prices.

[3] $\frac{G/T}{100 - G/T}$ %, where G = Gross trading profit, T = Turnover.

[4] Change in value of stocks less estimated stock accumulation.

Source: Company Income and Finance 1949-53, pp. 22; 26; 40. J. C. R. Dow, op. cit., Table X, p. 280; 95th-99th *Reports of the Commissioners of Inland Revenue.*

6. If the rates of change of the historical costs of inputs other than purchases differ from those of purchases, accounting profit will reflect these differences. (Further, to the extent that firms do not base their prices on direct costs, these inputs would include factory overheads.) The relationship between the apparent earning rates of stocks shown in Table 1 then will differ from the relationship which would be obtained if purchases were the only costs and mark-ups were applied to them alone. (Clearly, the *absolute* sizes of the two sets of apparent earning rates will always differ.) Similarly, the relationship between the real earning rates shown in Table 1 also could differ from that which would be obtained if purchases were the only costs. However, provided that all costs increase, the direction of the changes in earning rates will not be affected.

7. Apparent earning rates on stocks generally rose in the years with greatest stock appreciation, when real earning rates fell. The

changes in the mark-ups were moderate only and mark-ups were not always increased in the relevant years. Provided that the increased mark-up was greater than $\frac{(2+r_i)(2+g_{i+1})}{4}$. Vo, (F.I.F.O.-cost pricing), and $\frac{2+g_{i+1}}{2}$. Vo, (average-cost pricing), where r is the rate of increase of costs, g is the rate of increase of physical sales, i is the relevant stock-turnover period and Vo is the original mark-up, the apparent earning rate on stocks of firms using either form of historical-cost pricing would increase. These results could explain the movements in the apparent earning rates in the relevant years. The rate of increase of physical output in manufacturing industry each stock-turnover period was relatively modest and levelled off towards the end of 1951. The increase in the mark-ups between 1949 and 1950 could have increased apparent earning rates even though output and physical sales were increasing. Similarly, the nearly constant mark-ups in 1950 and 1951 could have meant a fall in the apparent earning rates. Similar reasoning could explain the rise in the apparent earning rate of chemical companies in 1950. The increase in the mark-up of the wool companies coincided with the boom in their activity, so that their apparent earning rates could have remained unchanged.

8. The cells in Table 2 contain the values of the new mark-ups which with constant physical sales and with given original mark-ups and increases in costs, would keep real earning rates constant.[12] It should be remembered that depreciation allowances have to be met out of these increased mark-ups on costs; even if these mark-ups were great enough to cover increases in material costs, increases in capital consumption valued at current replacement cost still could cause falls in real earning rates defined as the ratios of current incomes to current values of *total* funds employed.

TABLE 2

VALUES OF MARK-UPS NEEDED TO KEEP REAL EARNING RATES CONSTANT, FOR GIVEN ORIGINAL MARK-UPS AND RATES OF INCREASE IN COSTS

Vo =	0·05	0·10		0·15		0·20	0·25
	F.I.F.O.-C.P.	F.I.F.O.-C.P.	A.C.P.	F.I.F.O.-C.P.	A.C.P.	F.I.F.O.-C.P.	F.I.F.O.-C.P.
r_i \							
0·01	0·061	0·111	0·110	0·162	0·161	0·212	0·263
0·02	0·071	0·122	0·121	0·173	0·171	0·224	0·275
0·03	0·082	0·133	0·131	0·185	0·181	0·236	0·288
0·05	0·103	0·155	0·150	0·208	0·201	0·260	0·313
0·10	0·155	0·210	0·196	0·265	0·248	0·320	0·338

F.I.F.O.-C.P. : F.I.F.O. — cost pricing; A.C.P.: average — cost pricing.

[12] If physical sales are increasing, these values should be multiplied by $\frac{2+g_{i+1}}{2}$ where g is the rate of increase of physical sales and i is the relevant stock-turnover period.

Values calculated from

$$Vi = Vo\,(1 + r) + r \quad \text{(F.I.F.O.-C.P.)}$$

$$Vi = \frac{2Vo\,(1+r)^2 + r(2 + r)}{(2 + r)\,(1 + r)} \quad \text{(A.C.P.)}$$

where Vi = new mark-up, Vo = original mark-up, r = rate of increase of costs, and i is the relevant stock-turnover period. (See mathematical appendix.)

9. The rate of increase of the prices of stocks of the manufacturing companies in 1950 averaged 4-5% each stock-turnover period; the corresponding figures for the chemical companies in 1951 and the wool companies in 1950 were 2-3% and 20-30% respectively.[13] The values of the new mark-ups in Table 2 corresponding to increases in costs of this order suggest that the actual changes in mark-ups which occurred in these years were not great enough to offset the fall in real earning rates which these increases in costs otherwise would imply.

10. The simple models above and in the mathematical appendix ignore wage costs and the fact that funds are invested in fixed assets and working capital other than stocks. Wage costs may rise less fast than material costs, and the prices of fixed assets and the value of working capital other than stocks may not rise as fast as the prices of stocks. When physical sales are increasing, there may be economies in the use of fixed assets and other working capital, so that the current values of funds employed in these assets may not rise as fast as the current values of funds employed in stocks. Finally, the physical level of stocks may not increase at the same rate as the increase in physical sales. For these reasons, the current values of funds employed may not increase as rapidly as is implied in the simple models above; the falls in real earning rates then would be less. Nevertheless, given the approximations involved in the estimates of the earning rates and mark-ups in Table 1 above, historical-cost pricing policies could explain the falls in real earning rates, even if mark-ups were varied. The analysis also shows that firms could maintain their real earning rates by adopting replacement-cost pricing. Furthermore, provided that the mark-ups used by firms in different industries did not contain large (or differential) monopoly elements but were competitively determined and represented the normal profits of each industry, prices generally would reflect current opportunity costs. Purchasers then could choose between different commodities on the basis of a comparison of opportunity costs. This comparison cannot be made when historical-cost pricing is used and it is for this reason that historical-cost pricing leads in the long run to misallocation of resources.

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[13] These figures are obtained from the indexes of prices used in the calculations of stock appreciation.

MATHEMATICAL APPENDIX

1. Let A = apparent earning rate,
R = real earning rate,
t = physical sales each stock-turnover period,
g = rate of increase of physical sales,
c = costs,
r = rate of increase of costs,
$V\%$ = mark-up.

Subscript i refers to the current stock-turnover period.
It is assumed that stocks are purchased at the end of each stock-turnover period.

2. (i) *F.I.F.O.-cost pricing*

$$A_i = \frac{Vt_i c_{i-1}}{\frac{t_i + t_{i+1}}{2} \cdot \frac{c_{i-1} + c_i}{2}} = \frac{4V}{(2 + r_i)(2 + g_{i+1})} \% \quad .. \quad (1)$$

$$R_i = \frac{Vt_i c_{i-1} - \left\{ (c_i t_{i+1} - c_{i-1} t_i) - \frac{c_{i-1} + c_i}{2} (t_{i+1} - t_i) \right\}}{\frac{t_i + t_{i+1}}{2} c_i}$$

$$= \frac{2V - r_i(2 + g_{i+1})}{(1 + r_i)(2 + g_{i+1})} \% \quad .. \quad .. \quad .. \quad .. \quad .. \quad .. \quad (2)$$

It can be shown that A_i is always greater than R_i by subtracting (2) from (1) to obtain a positive value.

3. (ii) *Average-cost pricing*

$$A_i = \frac{Vt_i \frac{c_{i-1} + c_i}{2}}{\frac{t_i + t_{i+1}}{2} \cdot \frac{c_{i-1} + c_i}{2}} = \frac{2V}{2 + g_{i+1}} \% \quad .. \quad .. \quad .. \quad (3)$$

$$\frac{Vt_i \frac{c_{i-1} + c_i}{2} - \left[\left\{ \frac{c_{i-1} + c_i}{2} t_{i+1} - \frac{c_{i-2} + c_{i-1}}{2} t_i \right\} - \frac{c_{i-2} + 2c_{i-1} + c_i}{4} (t_{i+1} - t_i) \right]}{\frac{t_i + t_{i+1}}{2} c_i}$$

$$\frac{(1 + r_{i-1})(2 + r_i) - (1 + r_{i-1})(2 + r_i)(2 + g_{i+1}) + (2 + r_{i-1})(2 + g_{i+1})}{2(1 + r_{i-1})(1 + r_i)(2 + g_{i+1})} \%$$

.. .. (4)

4. The results of paragraphs (3) and (4) of the note were obtained from equations (1) to (4) by examining the cases of $r_i \gtrless r_{i-1} > r_o = 0$, $g = 0$, and $r_i \gtrless r_{i-1} > r_o = 0$, $g_i \gtrless g_{i-1} > g_o = 0$, respectively. If g can be $\gtrless 0$, whether $R_i \gtrless V\%$ depends upon whether

$$g_{i+1} \gtrless \frac{-2r_i(1 + V)}{V(1 + r_i) + r_i} \text{(F.I.F.O.-cost pricing)}$$

and whether

$$g_{i+1} \gtrless \left[\frac{2V(1+r_{i-1})\ (2+r_i)}{(1+r_{i-1})\{2V(1+r_i)+(2+r_i)\}-(2+r_{i-1})} - 2\right]$$

(average-cost pricing)

In both cases, the value of g_{i+1} which makes $R_i = V$ is negative. (See paragraph 4 of the note.)

5. (iii) *Replacement cost pricing*

$$R_i = \frac{Vt_i\,c_i}{\frac{t_i + t_{i+1}}{2}c_i} = \frac{2V}{2+g_{i+1}} \quad .. \quad .. \quad .. \quad .. \quad .. \quad .. \quad (5)$$

6. *Increased mark-ups*

(i) *F.I.F.O.-cost pricing*

A_i remains equal to V% if the mark-up in period i is

$$V_i = \frac{(2+r_i)\ (2+g_{i+1})}{4} \cdot V_o\% \quad .. \quad .. \quad .. \quad .. \quad .. \quad (6)$$

where V_o is the original mark-up. The corresponding condition for R_i is

$$V_i = \frac{2+g_{i+1}}{2} V_o(1+r_i) + r_i\,\% \quad .. \quad .. \quad .. \quad .. \quad .. \quad (7)$$

(ii) *Average-cost pricing*

The corresponding conditions are for A_i,

$$V_i = \frac{2+g_{i+1}}{2} V_o\% \quad .. \quad .. \quad .. \quad .. \quad .. \quad .. \quad .. \quad .. \quad (8)$$

and for R_i,

$$V_i = \frac{2V_o(1+r_{i-1})\ (1+r_i)\ (2+g_{i+1}) + (1+r_{i-1})\ (2+r_i)\ (2+g_{i+1}) - (2+r_{i-1})\ (2+g_{i+1})}{2(2+r_{i-1})\ (1+r_i)}\,\%$$

.. .. (9)

THE UNIFORM TARIFF PROPOSAL*

Australian merchandise imports fall into three groups: duty-free goods (about 55% of imports), goods subject to revenue duties (estimated at about 15%), goods subject to protective duties (about 30%). The average effective rate of protective duty on this last group is around 25% ad valorem but the dispersion about this average is very great, ranging from 5% to 40% ad valorem or more.

Since Australia is apparently faced with a decline in the value of her traditional rural exports relatively to expanding gross national product, it is necessary to expand import-competing manufacturing industry more rapidly than national production.[1] Indeed the relative

* See M. Bernasek, *Economic Record*, April, 1960.

[1] In a later stage, the expansion may also be significantly into manufactured exports.

expansion of manufacturing is necessary to assure the maintenance of full employment. Hence the average height of the tariff is not under debate (unless we are concerned with income distribution *vis a vis* the farmer) for if there were not a tariff of this height then some comparable device would have to be used to assure full employment and balance of payments equilibrium.

The dispersion of the tariff is however a significant matter for debate since it is concerned with the question of *which* import-competing industries are to be established and hence with the most advantageous allocation of resources. As evidence of this dispersion we may take either the differences between commodities in ad valorem tariff rates or the differences between commodities in the ratio of foreign to home price. For example the 1958-59 Annual Report of the Tariff Board shows a list of chemicals whose price in Australia was around double the price of the Australian product (e.g. light soda ash, solid caustic soda, methyl alcohol, formaldehyde, acetic acid), while in the case of non-ferrous metals such as copper and aluminium Australian prices appear to have been much more nearly competitive. Such dispersion raises the query whether Australia has been developing a high-cost chemical industry and if so whether this represents the best allocation of resources. The problem it should be emphasised is: Into which of the alternative import-competing fields should expansion be directed? (Also expansion should plainly be into industries which it is hoped will later specialise for export.)

At any given time, with our fixed resources of land and capital, the expansion of the work force into new import-competing industries involves diminishing returns to the work force at large. This effect however (and its implication for living standards) is offset by the steady improvement of technology, larger markets and the growth of capital. Diminishing returns, or rising costs, are likely to occur discontinuously so that at any time a protective duty of up to say 40% may have to be granted to enable expansion into a new industry. But the idea of a maximum rate of duty is important, the establishment of an industry needing a greater degree of protection than this maximum being normally regarded as uneconomic. Equally important is the idea that tariffs be on a sliding time scale or subject to automatic review since the growth process is likely to see a reduction in costs.

Against the foregoing background, proposals that Australia should have a uniform tariff seem scarcely practicable. First of all about one-half of Australian imports is already duty free. There are two diametrically opposed reasons for this: the first is that Australian costs are far too high for protection to be entertained (e.g. optical lenses or printing of fabrics); the second is that Australian production needs no assistance to compete with imports (e.g. barbed wire and wire netting). Is protection to be given to this second type of commodity—and thus, in the oligopolistic Australian climate, distort income distribution in favour of profits? If duty-free goods are to be left free the tariff will not be uniform. When we turn to the goods at

present subject to protective duty there appear to be two arguments against a uniform tariff. The first is the anti-monopoly argument used above which applies to granting a higher duty to industries whose protection is at present below the average. The second is the development argument that the Tariff Board may need to grant higher-than-average duties to those import-competing industries into which we are moving for the first time. In summary, the elasticity argument that a uniform tariff discriminates against imports in just the right way[2] may need radical modification in terms of the anti-monopoly and development arguments.

This discussion of tariff dispersion has in effect led to formulating the first rudiments of a tariff code. The Tariff Board's enquiries centre around the Australian industry's cost disability in producing a commodity. Having ascertained the cost disability, the next task is to identify and allow for the extent to which the cost disability is due to inefficiency in any technical, managerial, distributive or market sense. Once this has been done the decision whether to grant protection should depend, it seems, only on whether the protection required exceeds the maximum permissible. In particular, it is irrelevant whether the cause of the disability is "a higher general cost level", higher costs of special skills or inability to benefit from economies of scale[3]—nor is it relevant to point out that the protection will reduce imports, raise employment and support wage rates, for all Australian protection customarily has these effects. As already stated, tariff making is a choice between the industries to which to allocate resources and for this purpose the comparison of cost disability with the maximum permitted should be sufficient. The only obvious exception to this is where social costs diverge from private costs, as where the existence of a community is at stake (e.g. a mining or weaving centre).

One other question is whether the Tariff Board should continue to examine narrow sectors of industry for their particular cost disability or whether it should not rather look at cost disabilities in broad sectors of industry. It might be found for example that the cost disability in a broad sector of the machinery industry requires a 30% ad valorem protective duty—firms being allowed to establish themselves in this sector and compete (if they can) behind this barrier. Periodic broad reviews by industrial sector appear to be a better use of the Board's time than the present avalanche of special enquiries —to which the 1957 Report on the Automotive Industry is a notable exception.

BURGESS CAMERON

Australian National University

[2] W. M. Corden, *Economic Record*, December, 1958, p. 332.
[3] Corden, *op. cit.*, p. 340.

MATHEMATICS IN THE SERVICE OF THE STUDY OF ECONOMICS

1. Dr. Rutherford's timely paper* on the teaching of elementary mathematics to economics students is not likely to meet with the protest from "literary economists" that it would probably have called forth a dozen years ago; indeed, it would perhaps be easier to accuse him of caution than to condemn him as a revolutionary. The paper will interest many of us in two ways, as a reasoned study of the need for and the shape of this sub-discipline, and as a statement of what is in fact being done in one Australian University; it would be useful at this stage to find out what steps (if any) are taken in this direction at others.

For almost ten years my chief activity at the University of Western Australia has been in this field. From my experience I am moved first of all to make one or two comments on Rutherford's paper and then to describe briefly the procedure at present followed in Perth. I would not attempt a general comment on the paper, its writer stands in almost the same position to which my experience and observation has brought me; a few specific points, however, do invite more attention.

2. In the first place, Rutherford has certainly not overstated the lack of basic mathematics shown by undergraduate economics students in general. His figures for Sydney suggest that one in four have failed to reach Leaving Standard in mathematics;; in W.A. I would be inclined to put the figure rather higher. But there are two other factors to be considered. A large proportion of Economics students are part-time students, often approaching middle age. If they ever studied mathematics to Leaving standard in the dim past, the amount "crammed" to scrape a pass has long since slipped away. I have usually found that, for these, a refresher course tends quickly to become a first instruction.

The other factor, not generally recognised, is this: our school mathematics is influenced mainly by English school mathematics; fundamental mathematics in the U.S.A. (and indeed many continental countries) is moving steadily away from fundamental mathematics in England; thus, for example, American high schools tend to give increasing emphasis to elementary set theory, which leads inevitably to vector and matrix analysis, a part of mathematics that gets tucked into forgotten corners of an English syllabus. Yet matrix algebra, with its attention to orderings and relationships as well as quantities, seems particularly important to a social science. Moreover, America is increasing her lead in developing economic analysis, and more and more texts appear using mathematical techniques unfamiliar to British students, even when their school mathematics is not particularly weak. Rutherford's case for the need for mathematics is not exaggerated,—it is even arguable that it is understated.

* *Economic Record*, April 1960.

3. The mention of matrix theory brings me to a second point. While I agree in general with the content suggested by Rutherford for a minimum course, I am not quite happy about his implied distribution of emphasis. Difference equations and matrix analysis seem to be regarded as expendable. Yet no rigorous treatment of growth economics is possible without the first, and input-output analysis is only one field in which matrix theory can be useful.

There is no question about the necessity to give some competence in the use of functional formulating, graphical work, and elementary calculus; but I have slowly come to the view that for economists the pattern of required mathematics is becoming quite different from that traditionally provided mainly for the use of the physical sciences. Mathematical study seems to be particularly susceptible to laws of demand. Physical sciences, quantity-conscious for half a millenium, have been its chief customers and helped to shape the product. With a few notable exceptions, economists were scarcely in the market until a quarter of a century ago, and even now are just discovering that a different brand suits them better. For them, relationships are as important as quantities, and time is seldom an ever-rolling stream, but jumps from budget to budget, from quarter-day to quarter-day.

It is wrong to suppose that "newer" mathematics is more advanced than the "older" forms. For our purpose we need not worry about difference equations that are not linear or are of higher order than the second (or very rarely the third). Within these limits my students have found difference equation technique no harder than school algebra, and more interesting because its applications are instantly observed. Vector and matrix analysis, I admit, comes easier to second or third year students than to freshers, but even so I prefer to give it myself rather than to leave it to a Mathematics Department which quite understandably emphasises different operations from those most important to us.

4. This leads to a third point for consideration,—the method of teaching. Rutherford has strongly made the point that we are not interested in the shape of formulation that the engineer prefers. I completely agree with this. I will go further and say that we may not always teach it as the Pure Mathematician teaches it. For him it is a philosophy, for us, a tool. It is more important for us to know how to use it than to appreciate the principles behind it. I hasten to say that I am quite aware that some knowledge of its derivation is often needed to prevent misuse; but sometimes this may be given in a way simpler to understand even if aesthetically less satisfying than the mathematician's way.

To give an example; proving that $\frac{d}{dx}(x^2 + 2x + 3) = 2x + 2$ by the summation to infinity of a series is more satisfactory than proving it by saying that if dx is a first order smallness then $(dx)^2$ is a second order smallness and may be disregarded; because the second

method proves it approximately true and the first precisely true. But the second method is easier for non-mathematicians to follow; and in economic applications "approximately" is as good as "precisely" because almost all our quantities are approximate rather than precise and it is well to be reminded of that. My students grasp, readily enough, simple difference equation when proved by induction; a more rigorous mathematical proof floors them. My textbook "Elementary Mathematics for Economists" was for five years or more in the melting-pot; with five generations of students I tried different expositional methods. The result included a number of "proofs" not pleasing to the pure economists but pragmatically acceptable.

5. On one final point I am tempted to join a minor issue with Rutherford. He divides his students into two classes, the economic theorist and the small group interested in more advanced parts of econometrics or statistical economists. I would divide mine into those who want a smattering of economics to make them good citizens, to contribute towards a liberal education (or whatever the popular slogan may be) and those who aspire to be economists, even if not very good ones. Most of our Universities have a system in which many Arts students take Economics I and then are seen no more. I am not saying that this is good or bad; I merely say that since it exists I find it sufficient for these students if they understand a simple functional relationship and can read graphs, or simple statistical tables. I find, too, that from eight to ten work periods is ample for this. But for the others, those who will study Economics through three or four years, I want the whole of Rutherford's list thrown at them and hard. This is not to make econometricians out of them. Current economic literature already demands it, and the economics of the future will require it still more.

6. Since a number of Economics Departments in Australian Universities are at present turning seriously to the problem of providing such a level of mathematical training, and since the University of W.A. has done some pioneering in this field, the manner in which we teach it may be of interest to others. I will repeat that the points I have tried to make arise from no blue print but are the fruits of ten years of experience. In the beginning, we tried blue prints and were forced continuously to amend them and a long process of trial and error led us to our present position.

The first year students all receive, in their first term, a course of ten periods on functional and graphical representation, leading to full graphical treatment of maximisation. One result of this is that other teachers of economics may use supply and demand curves without wondering if they are understood, an advance greater than we might like to admit. For Arts students little more systematic training in mathematics may follow. I have indicated that I regard this as unsatisfactory, but it should be stated that none of these will be proceeding to honours; in the future honours will be offered only in the Economics

degree course and it is expected that, as a result, more and more of those wishing to go beyond one year's study will change from an Arts to an Economics degree.

All Economics degree students must take in their second year the unit Economic & Social Statistics, and are encouraged also to take Mathematical Economics as a full unit. The syllabus for the latter is substantially in agreement with Rutherford's list, but gives more emphasis to difference equations and matrix theory than he does and includes half a term's work on model-building (production & utility surfaces and so on).

In third year, two mathematical units are offered,—advanced economic statistics and Econometrics A. These units, designed for the specialist, are optional ones, but a student may elect to take either or both. The second subject is mainly concerned with activity analysis and includes linear programming and easy Games Theory application with an introduction to other fields such as the queuing problem.

Finally, in the fourth year, a course on more advanced econometrics is offered. Few students will take this; it is available only to honours students who have taken the prerequisite unit in third year, and even so it is only one option out of six. But it does cater for Rutherford's select mathematical group, and more effectively than in most Universities.

I may add that in 1957 I investigated the mathematical teaching in Economic Departments in eleven British Universities. Excluding the special cases of Oxford, Cambridge and the London School of Economics, I found only at Birmingham and Manchester approaches as comprehensive as ours, although Nottingham, North Stafford, and Queens University, Belfast, were consciously moving towards a similar goal.

WILFRED T. DOWSETT

University of Western Australia

RESTRICTIVE TRADING PRACTICES: A MEMORY

The conclusions of Professor Hunter's important and interesting article[1] reminded me of something. It may be put in the manner of James Bonar's *The Tables Turned,* a little book of imaginary conversations well known to economists of an earlier generation.

Newcomer in Hades: You are no doubt aware, Dr. Smith, that nowadays there are earnest students of the nature and causes of the wealth of nations even in the Antipodes?

Adam Smith: I had heard something of the sort. It would appear that from the gaol established at Botany Bay some two years, I think, before I came hither, there has sprung a flourishing nation. Some time since, I met a fellow from that region, one HEARN, who spoke in the same Irish cadence as my revered teacher, the never-to-be-

[1] "Restrictive Practices and Monopolies in Australia", *Economic Record,* March 1961, pp. 25-52.

forgotten HUTCHESON. He pretended to be a Political Economist (a term I never liked). The man had charm, but I thought him shallow.

Newcomer: He has had successors, Sir. You would agree, I think, that their arguments cut deeper, though sometimes the charm is difficult to perceive. But here, in a Review or Journal which they now publish, is a discourse not only weighty but elegant.

Smith: Its subject?

Newcomer: "Restrictive Trade Practice"—that is to say, agreements among master-manufacturers and traders, made with a view to . . .

Smith: I think I can guess their intention.

Newcomer: Professor HUNTER tells us that legislation is contemplated by the Government, and that the ATTORNEY-GENERAL is to devise it. Our author, however, appears to think that more is to be expected from a determined body of men, a Tariff Board, charged with regulating the duties of customs so as to ensure the same end.

Smith: The ATTORNEY-GENERAL, or the members of that Board, will need fortitude. I seem to remember that I made some remarks about the common fate of such men.

Newcomer: Could this be the passage, Sir?

"Were the officers of the army to oppose with the same zeal and unanimity any reduction in the number of forces, with which master manufacturers set themselves against every law that is likely to increase the number of their rivals in the home market; were the former to animate their soldiers, in the same manner as the latter inflame their workmen, to attack with violence and outrage the proposers of any such regulation; the attempt to reduce the army would be as dangerous as it has now become to attempt to diminish in any respect the monopoly which our manufacturers have now obtained against us. This monopoly has so much increased the number of some particular tribes of them, that, like an overgrown standing army, they have become formidable to the government, and, upon many occasions, intimidate the legislature. The member of parliament who supports every proposal for strengthening this monopoly, is sure to acquire not only the reputation of understanding trade, but great popularity and influence with an order of men whose numbers and wealth render them of great importance. If he opposes them, on the contrary, and still more, if he has authority enough to be able to thwart them, neither the most acknowledged probity, nor the highest rank, nor the greatest public services, can protect him from the most infamous abuse and detraction, from personal insults, nor sometimes from real danger, arising from the insolent outrage of furious and disappointed monopolists." If I may say so, Sir, that is not ill-written.

Smith: I am not displeased with it.

Newcomer: Our author tells us of meetings between manufacturers and traders at which such restrictive agreements are made. He concludes, "Thus do our business men, apparently with a high degree

of unanimity and in an atmosphere of good cheer, formulate the prices and competitive conditions . . .''

Smith: That reminds me of something.

Newcomer: Perhaps this, Sir? ''People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices.''

Smith: I suppose they do not read my book in the Antipodes.

J. A. La Nauze

University of Melbourne.

INFLATION AND COMPANY FINANCE: A REJOINDER

The reply by Professors Mathews and Grant to my review of their book challenges my reading of their figures. What I said was that they had not shown that companies got into a weak financial position in the period 1945-46 to 1952-53, taken as a whole. The most likely reason for this was that companies had not followed the pricing policies the authors said they had.

My review did not put forward a view as to how companies ought to set prices; I said that I was not convinced by the authors' arguments that companies ought to have increased prices even more rapidly than they in fact did.

R. J. Cameron

INFLATION AND COMPANY FINANCE: A REJOINDER[1]

At the beginning of my comment I said that the essential point of the discussion was the impact upon the enterprise. Depreciation allowances may exceed renewal charges, so that the firm obtains additional funds enabling a further expansion of productive capacity. Would it be too much to suggest that the controversy over financial allocations for capital consumption is fictitious. The successful company will endeavour to expand on the basis of its capacity to sustain high undistributed profits and its attractiveness in the capital market. In a very real sense depreciation allowances are a special tax concession offsetting the impact of company tax and dependent upon the age of assets held by the firm. The main The main purpose of my comments is to suggest some deficiencies when reliance is placed upon traditional ''rules of thumb''. In a climate of technical progress and uncertainty such conventions are hardly likely to provide a useful treatment of depreciation and replacement; a feature which, one suspects, business is well aware of.

W. P. Hogan

Newcastle University College.

[1] See R. L. Mathews and J. McB. Grant, "Inflation and Company Finance: A Reply", *Economic Record*, August, 1960; pp. 418-423.

NEWS AND NOTES

At the meeting of the Central Council of the Economic Society of Australia and New Zealand, held in Brisbane on May 30, Professor P. H. Karmel was elected President. All other office-bearers were re-elected.

At the 35th Congress of the Australian & New Zealand Association for the Advancement of Science, Professor Sir John Crawford was President of Section G. His Presidential Address entitled "The Significance of Recent Developments in Asia for the Economic Future of Australia" will be published in the September issue of the *Economic Record*. The following papers were also presented:—

"Economic Policy and the Industrial Structure (*Burgess Cameron*); "The Productivity of Investment in the Pastoral Industry" (*J. H. Duloy*); "The Meanings of Income" (*R. C. Gates*); "The Impact of Manufacturing Development on Australia's Balance of Trade" (*H. F. Goerke*); "Quarterly Estimates of National Income and Expenditure" (*B. D. Haig*); "The Structure and Development of the Australian Cement Industry, 1949/50 to 1959/60: A Preliminary View" (*W. P. Hogan*); "Flow-of-Funds, Australia, 1953-54 to 1957-58" (*A. S. Holmes*); "Restrictive Practices and Monopolies in Australia" (*A. Hunter*); "Some Thoughts on Barriers to Entry in a Dynamic Setting" (*B. L. Johns*); "Regional Growth and Benefit-cost Analysis" (*A. Kerr*); "Regional Income Estimation in the Hunter Valley, New South Wales" (*D. A. March*); "Recent Developments in the Australian Financial Structure" (*D. H. Merry*); "Our Trade Cycles and Monetary Policy" (*G. R. Mountain*); "Some Special Aspects of the Australian Policy of Trade Protection—'Excess Cost' and a 'Scientific Tariff'" (*A. J. Reitsma*); "Hire Purchase in a Small Dependent Economy: The New Zealand Case" (*N. Runcie*); "Building and the Trade Cycle in Australia Between the Wars" (*C. B. Schedvin*); "Trade Credit in Australia" (*M. P. Schneider*); "Investment, Growth and the Trade Cycle—The Post-War Australian Experience" (*D. J. Smyth*).

The 36th Congress will be held in Sydney in August, 1962.

BRANCH SECRETARIES

New South Wales: R. R. Clark, c/o The Mutual Life & Citizens' Assurance Co. Ltd., Box 1598, G.P.O., Sydney N.S.W.

Victoria: Mr. G. Bills, Department of Economics, University of Melbourne, Parkville, N.2, Victoria.

Queensland: C. P. Harris, Department of External Studies, University of Queensland, St. Lucia, S.W.6, Queensland.

South Australia: Mr. D. H. Whitehead, Department of Economics, The University, Box 498 D, G.P.O., Adelaide, South Australia.

Western Australia: G. A. Bartlett, c/o Administration, University of W.A., Nedlands, Western Australia.

Tasmania: D. E. Kirby, Box 665E, G.P.O., Hobart, Tasmania.

Canberra: J. G. Head, Department of Economics, School of General Studies, Australian National University, Canberra, A.C.T.

Wellington: P. S. Stannard, Esq., c/o Bowden, Bass & Cox, Public Accountants, P.O., Box 986, Wellington, New Zealand.

Auckland: Mr. V. Argy, University of Auckland, P.O. Box 2175, Auckland, New Zealand.

Christchurch: N. L. McBeth, c/o "Press", The Square, Christchurch, New Zealand.

Gold and the Dollar Crisis. By R. TRIFFIN. (Yale University Press, New Haven, 1960.) Pp. xiii + 195. $4·75.

The substance of this book has already been published in the March and June 1959 issues of the *Banca Nazionale del Lavoro Quarterly Review.* Professor Triffin predicts that the supply of gold is likely to be inadequate for international reserve purposes in future decades. He gives some estimates to demonstrate this, assuming a 6-7% per annum increase in the volume of international trade. Admittedly, it is difficult to estimate the future production of new gold, the possible dis-hoarding of private gold and the amount which the Soviet Union is likely to sell to other countries.

The supply of gold can be augmented for international reserve purposes by countries holding stocks of major national currencies, such as the United States dollar or the pound Sterling. Professor Triffin sees a danger in this, as there are likely to be occasional crises due to large scale short- or long-term capital movements, speculation or the loss of confidence in a particular major currency.

The increase of member countries' quotas for the International Monetary Fund gives some temporary relief from the prospect of inadequate international reserves causing a spate of devaluations and increased restrictions on international trade. However, this would only be an expedient dependent upon the United States Congress making more funds available to the IMF to support international liquidity.

Professor Triffin's remedy is to "internationalise" deposits with the IMF so as to make them a truly international currency which supplements the world's supply of gold. He supports his advocacy of such reforms with skilful arguments. The substance of Professor Triffin's proposals is the same as Keynes's abortive Clearing Union proposals which figured prominently in the negotiations which led to the Bretton Woods Agreement. Keynes's plan, however, had some defects. Firstly, it contained a "built-in-inflationary bias". Secondly, it was open to political objections to the surrender of some sovereignty by member countries. Thirdly, the lending countries must forego some of the political power and prestige of direct loan negotiations. This is an advantage from the point of view of the borrowing countries. Triffin tries to frame safeguards which would, to some extent, meet these objections to the Keynes plan. However, the provision of "bancor" (or some other international currency to supplement the supply of gold to make the IMF more akin to an international central bank) is the essence of the proposed reforms.

Triffin is keenly aware of the difficulties of negotiations which would be necessary to implement his proposals. The problem is, of course, the fundamental one of establishing a freely working international monetary system, while at the same time leaving member countries free to pursue their individual economic and employment

policies. "Convertibility cannot be meaningfully defined for policy purposes, except as a relative concept whose ultimate culmination would imply the total surrender of national sovereignty by member countries over all forms of trade and payments restrictions, and even over exchange rates. Such surrenders are utterly inconceivable today in favor of a mere nineteenth century *laissez faire*, unconcerned with national levels of employment and economic activity. The negotiation and implementation of negative convertibility commitments are inseparable from the parallel negotiation and implementation of positive integration commitments among the countries concerned. National policy instruments cannot be thrown away. They can only be traded against international or supranational policy instruments adequate to serve the broad objects of economic policy in the modern world." (Pp. 146, 147.)

Triffin states in the Preface that there is a danger in publishing "a number of views which the fast-changing course of world events might soon render obsolete." He dedicates the book to his children, "who undoubtedly will, some years from now, feel inordinately proud or amused when discovering this intrepid attempt of their father to prophesy history and to deflect its course." So far, recent experiences of the United States dollar in international markets has only served to underline Professor Triffin's warnings.

At the end of the book the author provides a postscript containing the initial reactions to his proposals for reform from:

1. My Fellow Economists and from Central Bankers, at the Elsinore Meeting of the International Economic Association.
2. Her British Majesty's Committee on the Working of the Monetary System.
3. The Joint Economic Committee of the United States Congress.
4. The Administration.
5. The Action Committee for the United States of Europe.
6. Premier Nikita S. Krushchev.

Premier Nikita S. Krushchev is apparently an authority whose opinion is worth seeking. It runs as follows:

"Gold we have, but we save it. Why? I don't really know. Lenin said the day would come when gold would serve to coat the walls and floors of public toilets. When the Communist society is built, we must certainly accomplish Lenin's wish."

The initial reactions from the Administration appear as just a blank page. Printer's error?

ARNOLD COOK
University of Western Australia

Immigrants in Australia. By J. ZUBRZYCKI. (M.U.P. on behalf of the Australian National University, Melbourne, 1960.) Volume, pp. xi + 118. 57/6 Aust. Supplement, pp. ix + 102. 30/- Aust.

The volume, prepared by the author assisted by Nancy Kuskie who analyzed the census data and prepared the bulk of the statistical

material, contains 68 tables, which are supplemented by the 75 tables sold separately. Never before in Australia was so much statistical material on immigrants assembled within one publication (or two).

The first chapter describes statistically the effects of intercensal migration on the age and sex structure of the population. It does not cover any census before 1947 (some data from the 1933 census appear in the appendix) but gives a detailed coverage of the age-structure, and of sex and masculinity, by birthplace and by nationality. Zubrzycki calculates at 691,019 the net gain from immigration between 1947 and 1954. Age pyramids are shown for native-born and for immigrants in 1947 and 1954, and for males and females born in the Netherlands, in Poland, in the British Isles, in Italy.

Birthplaces are studied in the next chapter, and one table gives numbers by sex and birthplace at each census from 1921 onwards. Some interesting comparisons are made between States—immigrants show interesting trends in their choice of the State in which to settle. Period of residence and birthplace, birthplace and nationality, religion and birthplace are tabulated for 1954, with some brief discussion of the data.

Chapter three deals with the geographical distribution of immigrants in 1947 and 1954; emphasis is laid on urbanization and on metropolitan patterns, but strangely enough no map is given. The Supplement however would enable one to construct a map for each metropolitan area. Chapter four studies industry and occupational status (1954 only) and gives some interesting index numbers on the distribution by birthplace and industry. The index numbers of occupational status disclose that while Dutch and Poles are predominantly employees, Italians are predominantly self-employed, and Greeks tend to be employers.

As a source of conveniently arranged and well assembled statistics, the book and its supplement are very valuable indeed; they represent an enormous amount of painstaking computations. But, all told, apart from the computation of net migration-gain (ably discussed) and for two tables of data for samples of I.R.O. migrants, they do not depart from census material. The human aspect is entirely neglected. Migrant hostels, staging camps find no mention. The book's subtitle, "A Demographic Survey based upon the 1954 Census", is wholly justified. The price of the book and the supplement may only be justified by the very many statistical tables.

J. GENTILLI

University of Western Australia

The Commonwealth and Europe. Prepared by THE ECONOMIST INTELLIGENCE UNIT. (London, 1960.) Pp. xiii + 606. 42/- stg.

This book is a first-class contribution towards the solution of one of to-day's most important political and economic problems. One of the crucial obstacles standing in the way of a mutually acceptable agreement on economic integration between Britain and the six mem-

bers of E.E.C. is the need to find a means of reconciling British participation in a European system with her interests in and obligations to other Commonwealth countries. Before the publication of this book, this problem had been discussed only in rather general terms, and usually from the standpoint of the interests of a particular Commonwealth country. Now we are given a work which examines the problem very competently in detail and as a whole.

The first two chapters contain an interesting analysis of recent trends in the patterns of trade of Commonwealth countries, of the nature and effectiveness of the preferential trading arrangements and financial connections among them and of the shape of the regional trading systems which are emerging in Europe. Then the book examines the probable effects which alternative systems of integration in Europe might have, firstly on the commodities which Commonwealth countries export to Europe, and secondly on the rate of growth of each Commonwealth country. Practical suggestions are made to overcome the major difficulties likely to be encountered in ways which should be acceptable to Continental and Commonwealth countries, and to other members of G.A.T.T.

The discussion of prospects for the temperate foodstuffs exported by Australia and New Zealand is of particular interest. The Intelligence Unit's forecasts of trends of European production and consumption are much more encouraging, from an Australasian point of view, than those previously made by Continental writers and by some international organisations. The Unit is prepared to stake its reputation on the assumptions that the income elasticity of demand for food will be maintained at a higher level than is commonly assumed and that European governments will not be prepared to face the economic and social costs of maximizing agricultural production. These assumptions are obviously debatable, but the Unit invariably supports its conclusions with convincing argument.

The book is essential reading for economic policy-makers in Australia and New Zealand and will be of great interest to economists generally.

F. W. HOLMES
University of Wellington

Merger Movements in American Industry, 1895-1956. By R. L. NELSON. (Princeton University Press, Princeton, 1959.) Pp. xxi + 176. $5.00.

This book is a valuable addition to the literature of merger activity and is of especial interest in Australia where such activity has been widespread but has not been subjected as yet to much detailed study. A new series of manufacturing and mining data for 1895-1920 is provided and used in conjunction with the Thorp and Federal Trade Commission data for 1920-1956. The new series are presented in two-digit SIC categories; merger activity is considered in terms of number of consolidations, disappearances by consolidation and by acquisition, and capitalization.

Nelson examines several hypotheses relating to merger activity during the first wave, 1895-1904: industrial retardation, development of the transportation system and of the capital market, market control motivation, and economies of scale. He analyses the relationship of merger activitiy to business fluctuations over the period 1895-1956.

Merger activity is found to be associated with accelerating growth rather than retardation. The firm whose actual growth rate falls short of its target growth rate may be as susceptible to and more attractive for merger proposals than a firm experiencing retardation. Lack of sufficiently detailed data prevents examination of the influence of economies of scale. However, the prevalence of horizontal merger as against vertical and the great diversity in types of production operations among the firms in which mergers occurred throw doubt upon their importance. Once the accelerating growth hypothesis is advanced, one might look for economies other than those of scale of production; in particular, one might consider economies of growth.

The transportation thesis is rejected on inadequate evidence. Development of the capital market is seen as a causal influence during the first wave because of the earlier and important role of railroad reorganizations in changes in the capital market. Market control motivation is emphasized. Merger activity is found to correlate more closely with changes in share prices than with industrial activity changes.

Statistical information of the type provided by Nelson may acquire new significance from the approach to the size distribution of firms and industry equilibrium which is developing currently in the work of Hart and Prais, Simon and Bonini, and Newman and Wolfe. In this new approach the representative firm becomes an abbreviated notation for the size distribution which results from a process of chance. Clearly, such an approach requires detailed knowledge of births and deaths within the group. However, it is doubtful whether SIC categories would be appropriate to this theoretical context.

D. M. LAMBERTON

University of New South Wales.

Industrial Development. By M. D. BRYCE. (McGraw-Hill, New York, 1960.) Pp. xvi + 282. $7.50.

This is one of those rare books which should appeal to both students of economics and men of affairs. Mr. Bryce planned it as a guide for investors and administrators in comparatively undeveloped countries. He has set out, in simple, penetrating terms, a system of analysis and a programme of action which should be useful in any country to people who have to recognize, evaluate, develop, or appraise, opportunities for private or public profit.

Obviously the author is well qualified as an economist. In the service of the Canadian Government, the World Bank, and (currently) an American firm of industrial consultants, he has had experience in

many countries. He has specialised in the application of economic analysis, supplemented by engineering studies and modern accounting procedures, to problems in industrial development. His emphasis is on private enterprise, and Government intervention (limited only by considerations of economy) to create a favourable climate for private industrial development.

The first step is to establish general criteria for the selection of projects for development and their location, physical and financial structure, and management. Inadequate criteria, such as capital intensity, effects on employment, and balance-of-payments effects, are closely examined and discarded. The general criterion adopted is net contribution to national income. To assess the potential contribution in these terms of each project two principal measures are used: (a) Commercial profitability, and (b) National profitability. The first is established by rigorous costing and market analysis, and the second by adjusting each cost and revenue item where there is a measurable discrepancy between private and public values. (e.g., where they are affected by subsidies or tariffs, by wages that would be higher than in alternative employment for the same labour, or by an exchange rate which overvalues the local currency.) These measures provide a basis for the exercise of judgment: the final decision must take account of immeasurables including various categories of external economies.

The next step is an outline of the systematic development of industrial projects. It begins with detailed studies of technical requirements and the assessment of technical feasibility, and goes on through an analysis of "economic feasibility", to the estimation of commercial and then national profitability. The final preparatory steps—designs, specifications, schedules, bids, and contracts, take the project to the point of no return. Then comes the setting up of the financial structure of the enterprise, and management.

The final section deals with the financing of industrial projects. It emphasises the importance of local requirements and local participation, yet does not neglect any corner of a world market for finance and the managerial and technical advice and assistance which commonly go with equity capital and loans from more advanced countries. It is detailed and intensely practical, but a solid theoretical framework is not far beneath the surface.

The whole, painstaking as it is, makes interesting reading of material which is commonly neglected because work in this field tends to be prejudged as pedestrian and dull. It is rich in specialised knowledge which should be (but commonly is not) at the fingertips of every economist.

The use of a qualified profit motive as a basis for public economic planning may have drawbacks. "Public profitability" in Mr. Bryce's language is identical with "social productivity" as this term is used by Chenery in a passage quoted. However, where increased real wages may constitute the major part of the "net social product" of a development programme, they cannot easily be included in "net profit" as

the term is commonly understood. They will be included in Mr. Bryce's calculation of "national economic profitability" but this is achieved (in effect) by deducting the wage increase from the estimated wage bill in the process of deriving an estimate of national profit from the prior estimate of commercial profit. Productivity, rather than profit, seems to be the appropriate concept.

The "project" approach is very effective. Macro-economic problems are kept in the background, and the tenor of the argument suggests that the profit motive, appropriately qualified, will go far towards meeting the needs of a government beset by problems of "backwardness"—including some problems generally discussed in macro-economic terms.

K. A. BLAKEY

University of Melbourne.

Essays on Value and Distribution. By N. KALDOR. (Duckworth, London, 1960.) Pp. 238. 35/- stg.

This book is part of a series of essays consisting of reprinted articles already well-known to most economists. Part 1, "The Theory of Equilibrium", commences with "The Determinateness of Static Equilibrium" (1934), which examines "the economics of that abstract world in which it is possible to give an exact account of the course of events solely by the aid of scientific generalisations" (p. 13). It is an excellent attempt to set limits, by the use of generally accepted assumption, ". . . within which deductive speculation must proceed . . ." (p. 14). The second essay, "The Equilibrium of the Firm" (1934), attacks the concept of the "representative firm" and the shape of the long-run average cost curve.

Part 2, "The Theory of Imperfect Competition", begins with an appraisal of Mrs. Robinson's "Economics of Imperfect Competition" (1934), and then takes up the problem of "Market Imperfections and Excess Capacity" (1935) brought up by imperfect competition theory. In "Professor Chamberlin on Monopolistic and Imperfect Competition" (1938), Kaldor joins in the war between Professor Chamberlin and Mrs. Robinson. His finding is that ". . . Professor Chamberlin . . . is trying to differentiate his product too far" (p. 92). The final essay in this part wrestles with "The Economic Aspects of Advertising" (1949/50).

Part 3 contains two short notes on "The Theory of Welfare Economics", both of which contain original ideas later taken up with great vigour by others. In "Welfare Propositions in Economics" (1939), Kaldor used what came to be known as the compensation principle to attempt a solution of the problem of whether the removal of the corn laws could, without making inter-personal comparisons, be said to have increased welfare. He was astray in remarking that this test led to unambiguous conclusions regardless whether compensation is actually paid, but, with some refinements, this principle is used by

all "new" welfare economists. In "A Note on Tariffs and the Terms of Trade" (1940), Kaldor laid the bases for subsequent discussions of optimum tariffs, and ultimately led to developments which made it possible to appraise the free trade versus protection controversy in welfare terms instead of in terms of so-called "pure" theory.

Part 4, "The Theory of Capital", examines the neo-classical theory of capital and interest, and the attacks upon it by Professor Knight and others, in "The Controvery on the Theory of Capital" (1937) and "A Rejoinder to Professor Knight" (1938). In this field, however, the author's position "... has shifted most since these papers were written" (p. 6). The Austrian concept of the "degree of roundaboutness" was in dispute, with disagreement about whether it was useful and "quantitatively definable". The virtue of the concept "... is solely derived from its supposed ability to reduce the existing stock of capital to a homogeneous quantity" (p. 197), and its consequent use as an indicator of the degree of capital intensity.

Part 5 consists of only one essay, "Alternative Theories of Distribution" (1955/6), the purpose of which "... is to present a bird's-eye view of the various attempts, since Ricardo, at solving this 'principal problem'" (p. 209). It is an ambitious attempt ". . . to integrate Keynesian macro-economics with value and distribution theory, and to show that the 'classical' approach of Ricardo and Marx could in turn be regarded as a special case of the latter" (p. 8). It is not surprising that this ambitious goal cannot be easily reached in 28 pages, but it would be disappointing if Mr. Kaldor does not take up this line of thought again in a more comprehensive work.

There is no doubt that Mr. Kaldor is one of the most stimulating, lucid, and original economists of the day, and his ability to comprehend and develop fundamental ideas will ensure not only that economists will re-read the articles in this book, but also that any book or article he may write in the future will receive careful attention.

H. KOLSEN

University of Sydney.

Labor and Trade Unionism. An Interdisciplinary Reader. Edited by W. GALENSON and S. M. LIPSET. (John Wiley & Sons, New York, 1960.) Pp. xix + 379. $6.50.

This is a collection of 24 articles most of which have appeared in journals in the last five years. The sub-title reveals the purpose of the book. It is designed, according to its editors one of whom is an economist and the other a sociologist, to contribute to "a rapprochement between economic and sociological views of labour problems and trade unions". However, as a quick glance at the articles included will show, this is not to be taken to mean that many of them adopt an interdisciplinary approach. Rather, the range of articles included provide the student of labour with some of the more important recent contributions to the field by economists and sociologists. The problem of re-

conciling and integrating the various contributions, so far as this is possible, must still be undertaken by the reader; but in this connection the editors' excellent little introductions to the different sections of the book are very helpful. At the least, the student who uses this book will be made aware of the important inter-relationships between economics and sociology in labour problems.

The articles are grouped under nine sections and these are some of the main questions which are considered: Is union wage policy primarily determined by market forces or by internal organizational (political) factors? What are the more neglected aspects of the supply side of labour? What lessons does (American) history provide for the future development in the size and structure of (American) unionism? What problems arise from the monopoly power of a union? What part do unions play in inflation? What is the character of trade union government—democracy, bureaucracy, etc., and why? What factors influence the propensity to strike, the morale of workers and their attitude to work?

These are all important problems which any university course in industrial relations or labour economics should consider and which are so conveniently brought together in this book. Although the social and institutional setting of most of the papers is American, the selection will also be useful for the Australian student since most of the articles are concerned with analysis rather than description. It is to be hoped also that his sense of ignorance about his own institutional and social setting will stimulate the Australian student to do more work in his own environment.

Inevitably, there will be differences of opinion as to whether certain articles should have been included and other omitted. It should be clear that the range of topics covered in this book is more limited than say "Unions, Management and the Public" by Bakke and Kerr which contains extracts from books as well as journals. However, the list of selected bibliography provided by the editors as well as the many references in the articles included make this book as good a basis for systematic and balanced approach to the study of labour and trade unionism as might be desired. Moreover, unlike Bakke and Kerr, the articles are reprinted in full.

J. E. Isaac

University of Melbourne.

The Demand for Durable Goods. Edited by A. C. Harberger. (University of Chicago Press, Chicago, 1960.) Pp. viii + 274. $6.00.

The five econometric research studies assembled in this volume make an important contribution to the problem of measuring demand relationships—one of the oldest econometric problems, which however has not by any means been fully solved yet. These statistical studies are eminently readable and correctly emphasize the economic context in which they are set. Whilst some more sophisticated statistical

methods than ordinary least-square regression analysis, such as attempts to eliminate regression bias and tests for serial correlation of residuals, are used, the main difficulties with which the investigators were faced are clearly shown to be the choice of suitable data and economic models.

Three of the studies deal with durable consumer goods, the commodities being housing, refrigerators and motor cars, investigated by Muth, Burstein and Chow respectively. There is also a study by Griliches on demand for farm tractors, and one by Grunfeld on investment decisions by companies. With the possible exception of motor cars, these are fields in which comparatively little work has been done. Chow's present study on motor cars seems a little out of place in this volume, as it is in the nature of an addition to an earlier and more comprehensive study, to which the reader must refer for a discussion on previous demand studies.

The basic idea of the economic models utilised consists in studying stocks as well as purchases; and consumers are envisaged as gradually adjusting their actual stock to a desired level. Thus, adjustment coefficients as well as price and income elasticities are computed. In most cases, high demand elasticities are obtained; though this may appear surprising in the case of housing, the paradox is more apparent than real. The results are generally plausible, and if alternative assumptions lead to alternative and thus not fully conclusive results, this is not a fault of the analysis but underlines the complexity of the problem. An admirable introduction by the editor summarises the main results and illustrates their implications by considering the pattern of consumers' behaviour in a typical recession.

C. E. V. Leser

Australian National University.

The Prof. By R. F. Harrod. (Macmillan, London, 1959.) Pp. xv + 282. 41/6 Aust.

Harrod's personal memoir of Lord Cherwell dedicated to Sir Winston Churchill, is both perceptive and myopic; egocentric, autobiographical and detached; parochial and universal. It is quite certainly its author's most distinguished literary production. Whatever Sir Roy's particular blind spots may be, the book is alive and resonant with strong emotions, and it will for a long time to come be a classic in the art of half biography; it sets a high standard for Lord Birkenhead to keep up when he produces his full-length account of Cherwell's life.

The Prof was the slightly sinister character in a bowler hat and heavy overcoat, who lived at the other end of the Meadow Buildings when I was an undergraduate, and stalked to his Mercedes or Rolls (he had both at that time I believe) attended by a burly manservant, and in silence. He was a legend already then in 1927, and Harrod beautifully evokes the atmosphere of Christ Church in the 1920's, and

expounds the background to that living legend. The book accomplishes two major tasks; to re-create the between-wars university life, and the part that the Prof played in it, and to unravel the ambivalent relationships of this strange character to the other inhabitants of his home—for Christ Church was the only home the Prof had for many years.

The final question raised is universal. Was the Prof right? Harrod, the young liberal, battled against, and violently rejected, the cynicism, as he then saw it, of the Prof's view of human nature and human motivation. But his final conclusion on the Prof's thoughts admits defeat (or conversion); the Prof was right, and the young Harrod, by implication, was wrong. The Prof, in Harrod's view, was "a man of thought", in contrast to all the nameless "distinguished intellectuals" whom Harrod, in contrast, labels "men of opinions".

These views are extreme, like so many of Harrod's theories, but the kernel of his own reflections on his remarkable friend have depth, and are a challenge to everyone. This is not a trivial book, even if it is centred around a single common room, and around the little group of intellectuals who served as one of Churchill's brains trusts—the Cherwell circus. It raises issues of our time, and lays down a gaunlet; anyone who thinks that the Prof was wrong had better brush up his arguments, or allow them to be pulverized by a sneer that has outlived the man.

For practising economists the moral of the book is powerful, if oblique. The part that economists and statisticians effectively played in total war is one of the book's minor themes, complicated though it was in this instance by the special personal bond between Cherwell and Churchill, and by the peculiar relationship between Cherwell and his own advisers. The great gulf between the economic thinker and the statesman in action is well brought out, together with the reasons for the success of the applied economist with a talent for "processing" figures and asking questions.

In the power world of today there will be more Churchills and Cherwells, if of lesser stature, and economists need some bridge to them if their thoughts are to be heeded in action.

I. Bowen

University of Western Australia.

Fluctuations in Trade, Industry, and Finance: A Study of British Economic Development 1850-1860. By J. R. T. Hughes. (Oxford University Press, Melbourne, 1960.) Pp. xvi + 344. 73/- Aust.

The British trade cycle of the nineteenth century has long since been classified as an important genus. Dr. Hughes, inspired by the pioneering work of R. C. O. Matthews, is concerned with the next step toward an understanding of the cycle, namely, the identification and examination of its numerous species. With this aim in view, he brings his microscope to bear on the British economy of the 1850's. In the event, the results obtained do not leave the reader with a very clear

impression of the cycle during that period. Fluctuations in overseas trade and in activity in the textile industries receive close attention as do those in coal and iron. There is some discussion of railway building, shipbuilding and the important monetary developments of the decade. From all this some interesting inferences emerge but not an unambiguous account of the trade cycle. Apart from the obscurities of the author's style, there seem to be two reasons for this. In the first place, the source material available for an exhaustive treatment of the cycle in this period is inadequate. Indicators of economic activity are neither numerous enough nor general enough to permit identification of upswing and downswing in the economy as a whole. Two key sectors of the economy, agriculture and residential construction, have had to be virtually ignored for lack of information about them. We are left, then, with some aspects of economic fluctuation in the period. Secondly, even allowing for the possible existence of cyclical patterns not recorded in the contemporary sources, the 'fifties appear on Hughes's showing to have been a period when the cycle was a mere incidental to broad-based economic growth. Mid-Victorian optimism seems to have been justified by a strong upward trend in economic activity between 1849 and 1860 retarded only slightly by the depression of 1858 and sectoral downswing in other years. If growth did overshadow the cycle to this extent then the author's obiter dictum in his concluding sentence that "by the standards of the nineteenth century the 1850's were . . . remarkable," may well be permissible and this would seem to be a feature of the period crying out for an explanation in a study of this nature. But here the author seems to falter. Sometimes the new gold discoveries seem cast for the role of leading player, at others the American railroads or the wide range of internal innovation. Finally, the author seems to settle for "the spirit of risk . . . which prevailed in the British economy." Of course, it is unlikely that any single factor would explain the buoyancy of the 'fifties but many readers may look for more precise ideas as to orders of importance.

If this review has given the impression that economic historians can afford to ignore this book then it has been unjust. Whatever its demerits, it is an important contribution to our knowledge of British economic development and of our understanding of economic processes. The attention to detail is commendably close although the figures quoted for Australian gold production would be much nearer the truth if the author had consulted the official Australian sources.

W. A. SINCLAIR

University of Melbourne.

Progress and Profits in British Economic Thought, 1650-1850. By G. S. L. TUCKER. (Cambridge University Press, London, 1960.) Pp. vii + 205. 27/6 stg.

Interest in the history of economic thought has increased among both economists and historians in the last two or three decades. Indeed since the last war even the specialist has been almost embarrassed by

the wealth of publications, ranging from monumental works such as the Royal Economic Society's edition of Ricardo and Schumpeter's *History of Economic Analysis* to monographs on individual topics. Mr. Tucker's monograph, *Progress and Profits in British Economic Thought, 1650-1850* is a welcome addition to this growing body of literature.

Not only Mr. Tucker's subject but also his method of approach is of particular interest. The key to his method is provided by his prefatory quotation of Sir William Ashley's dictum that the history of economic theory should be treated as "a stream which may indeed change its size and direction, but has throughout a continuity of movement". Mr. Tucker has traced the course of ideas about the rates of interest and profit and progress among British economists through the long and important period from the middle of the seventeenth century to the middle of the nineteenth. The study thus covers the greater part of the time during which Britain was changing from being one of the backward economies of Europe to being its leading industrial and trading state. Mr. Tucker sets out to discover what the chief writers on his subject really meant, studying their views in the context of their complete writings and of contemporary discussions, and also in the light of what their predecessors thought. He writes not as a critic, but dispassionately as an explorer, awarding neither praise nor blame. In the present reviewer's opinion this is one of the most illuminating methods of treating the history of economic thought, and one too rarely adopted.

Writers prior to Adam Smith have perhaps suffered more than later ones from having individual passages quoted with scant regard either to the rest of their work, or to the context of contemporary discussions or to the stock of knowledge, correct or incorrect, which they inherited. It is, however, obvious that the further the historian penetrates into the past, the greater the danger involved in taking for granted that either the meanings attached to terms, or the tacit assumptions made by economists as to the nature of the universe and its problems, were the same as those made today. Probably no economists can be completely uninfluenced by the literature and the problems with which they are familiar. They may be developing ideas and tacitly making assumptions normal to their time but unfamiliar today; or they may, as Mr. Tucker suggests, be reacting against them. Studied against their contemporary background theories often become coherent and inteligible which if considered in isolation, or in direct comparison with modern theories, seem to be unintelligible nonsense. Mr. Tucker's general awareness of these considerations greatly enhances the value of his book as a positive contribution to our understanding of the development of economic ideas.

Perhaps Mr. Tucker's most interesting conclusion is that there was a marked change of emphasis in the discussions about interest, profits and progress during the two hundred years with which he deals, although the conviction that the rate of interest and/or profits, tended

to fall with economic progress gave a continuity to the discussions. He points out that during the seventeenth century discussion was concerned with the rate of interest itself: what determined it, why it fell with the progress of the economy and whether the fall was cause or effect. The practical problem which stimulated the theories was the scarcity and high price of loanable funds. For nineteenth century writers, on the other hand, the rate of profit was the centre of attention; the rate of interest was considered to be dependent on it. At this time the practical concern was with the question of whether the opportunities for profitable investment would dry up and progress be brought to a standstill. Mr. Tucker shows that this change in conception of the problem occurred gradually during the eighteenth century. Writers about the rate of interest then paid more attention to the effect of the rate of profit on the demand for loans and, also to the possibility that there was some natural limit to the progress that any one country could make owing to the tendency of the rate of profits to fall. Mr. Tucker shows that Cantillon, Massie and Hume contributed largely to these developments. Adam Smith's position and influence is discussed in some detail in Chapter IV "The Transition: Adam Smith". Mr. Tucker concludes that the treatment of the rate of profit in the *Wealth of Nations* as the key to the activity of the whole economy finally brought about the substitution of the rate of profit for the rate of interest as a factor of prime importance in relation to progress.

In discussing Adam Smith Mr. Tucker has perhaps not laid sufficient emphasis on his optimism. For though Adam Smith believed that there were natural limits to the amount of wealth that a country could obtain, it is evident that he thought that countries rarely reached this position. Appropriate institutions and enlightened government would facilitate technological progress and the development of new openings for trade; these would create new opportunities for profitable investment.[1] On the other hand both Ricardo and Malthus believed, though each for a different reason, that the economic system had built-in mechanisms that were so effective in reducing the rate of profit that progress was continually in imminent danger of ceasing. Mr. Tucker might well have made more than he did of this contrast between Adam Smith's optimism and Ricardo's and Malthus' pessimism, for real anxiety about the consequences of the tendency of profits to fall seems to have been introduced by the two latter. This criticism is however one of emphasis about which experts may disagree, and Mr. Tucker's actual account of the Ricardo/Malthus discussions is extremely useful. It is the first time that full use has been made for this purpose, of the correspondence between them now available in the Royal Economic Society's edition of Ricardo. Moreover Mr. Tucker has sorted out the tangle of Malthus' arguments with patience and considerable analytical acumen.

Mr. Tucker has been primarily concerned in his study with the

[1] *Wealth of Nations*, Bk. I, chap. IX, pp. 95-98. Cannan's edit.

actual writings of economists and of these he has given a most useful account. It is to be regretted, however, that he did not decide to include more reference to the changing economic background and institutions, particularly for the earlier part of his period. This is less familiar to economists than the later part and some very interesting work has been done on it in recent years which is relevant, at least in the reviewer's opinion, to the development of economic thought. Mr. Tucker has confined himself to a brief account of the fall of interest rates, and to drawing attention to the comparisons that were made with the Netherlands and the change that occurred in the type of comparison made between the seventeenth century and the end of the eighteenth century. He suggests that this change, together with the fall in the rate of interest in Britain, indicated a substantial increase in wealth and in the supply of loanable funds and that this may well have been a factor in changing the emphasis of discussions about interest, profits and progress. It would have been interesting if he had developed this line of inquiry further. Some reference to the extraordinary burst of experiments in the establishment of banks in Britain in the latter part of the seventeenth century would have enabled him to have provided more explanation of the pre-occupation with rate of interest as such at this time. The banking experiments, no less than the controversy over the legal rate of interest emanated, as Horsefield[2] has made clear, from the conviction commonly held that it was not only shortage of potential loanable funds but, also, the absence of suitable institutions to make them available for investment which hampered economic progress at time. The rate of interest was regarded as a limiting factor on investment, according to some writers because it reflected the lack of availability or actual shortage of loanable funds, according to others because its high level ate too deeply into profits. The development of a more or less effective banking system during the eighteenth century must, in the reviewer's opinion, be taken into account in explaining the shift of attention from problems of supply to problems of demand for loanable funds and, thus, ultimately from the rate of interest to the rate of profits.

The eschewing of specific reference to the contemporary economic background really seems to have hampered Mr. Tucker seriously in elucidating Locke's position in Chapters II and III. As he points out Locke was apparently misrepresented by later writers, particularly Massie and Adam Smith. He seems to suggest that Locke laid himself open to this because he frequently used the word *money* when he meant *loanable funds*. But this use of the word *money* was common in the seventeenth and eighteenth centuries and is still normal, for instance, in references to the money market. It seems to the reviewer that it is more probable that the misrepresentations were less disingenuous than this. For as Mr. Tucker points out Locke was careful to distinguish between the price or value of money as a loan, indicated

[2] Horsefield. *British Monetary Experiments 1650-1710.*

by the rate of interest, and the value of money in terms of the general price level. A more respectable explanation of the misrepresentation of Locke may perhaps be found in Locke's preoccupation with certain features of the late seventeenth century problems of the British economy. Much of the discussion in Locke's *Considerations of the Consequences of the Lowering of Interest* centres round the question of the possible connection between the rate of interest and the supply of money in circulation. The reason for Locke's preoccupation was his belief that a reduction in the rate of interest at that time would lead to large scale repatriation of Dutch capital, as well as to unwillingness to lend at home. Both would cause a decline in the quantity of money in circulation: the former by causing an outflow of specie and the latter by causing hoarding in cash or plate. The necessary consequence according to Locke's view of the quantity theory would be a corresponding reduction either in the price level or in the volume of transactions. It appears to follow that an inflow of specie or a release from hoards would increase the supply of loanable funds and lower the rate of interest etc. Locke's attempt to elucidate this converse process was unsatisfactory and confused as Cantillon pointed out, and it might be read in isolation as a theory of a crude relationship between interest and the supply of money (precious metals). Locke's preoccupation with the relation between the supply of money and the rate of interest and between the former and loanable funds is however intelligible enough in relation to the danger of repatriation of Dutch funds at the end of the seventeenth century.[3] But at the time when Massie and Adam Smith wrote this problem was no longer of significance. It is not unreasonable to suggest they were lead into at least some genuine misrepresentation of Locke because they attempted to summarise his opinions without considering the context of the problem with which he was concerned.

Although it may thus be suggested that Mr. Tucker's study would have gained by the use of more background information, it is of very real value and a most scholarly contribution. Mr. Tucker is to be congratulated in producing a book that is an original contribution to his subject and both enjoyable and stimulating to read.

MARIAN BOWLEY

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[3] See Locke, *op. cit.*, for instance pp. 17-22, p. 35 *el seq.* pp. 48-49 etc. Cantillar, *Essay de Commerce*, pp. 215-19, and Tucker, pp. 36-38, *ob.*

BOOKS RECEIVED*

A.—AUSTRALIAN AND NEW ZEALAND PUBLICATIONS

BUREAU OF AGRICULTURAL ECONOMICS. *The Economics of Road Transport of Beef Cattle—Northern Territory and Queensland Channel Country.* (Canberra, 1960.) Pp. 88.

This report deals with the cost of operating road cattle trains in the Northern Territory and S.W. Queensland. It comprises six parts. Part 1 contains some very useful information regarding the distribution and movement of cattle. Of particular interest is map 2 (opp. page 10) showing cattle movements into Qld., N.S.W., S.A. and W.A. Part 2 discusses the cost of operating various types of road trains. The large diesels appear to be the most economical, their average ton mile costs being 8·8 pence, as compared with 9·6 pence for medium diesels and 13·1 pence for petrol vehicles. This conclusion is reinforced by the discussion of the suitability of vehicles in part 3. Part 4 describes the present network of roads, part 5 the advantages of using road transport, and part 6 assesses the future prospects. The Bureau is to be commended on the production of this excellent report.

BUREAU OF AGRICULTURAL ECONOMICS. *Poultry Management Study in the Sydney Area of New South Wales, First Annual Report 1957-58.* (Canberra.) Pp. 107. Price not stated.

BUSHNELL, J. A. *Australian Company Mergers 1946-1959.* (Melbourne University Press, Melbourne, 1961.) Pp. 223. 37/6 Aust.

CHISLETT, G. D'A. *A Review of Factors Influencing Production in the Sheep and Wool Industry.* (Graziers' Federal Council of Australasia, Sydney, 1960.) Pp. 72. Price not stated.

COPLAND, D. B. (ED.). *Giblin—The Scholar and the Man.* (F. W. Cheshire, Melbourne, 1960.) Pp. 228. 50/- Aust.

COPLAND, D. B. *The Adventure of Growth.* (F. W. Cheshire, Melbourne, 1960.) Pp. 148. 30/- Aust.

GIFFORD, J. K., WOOD, J. V., and REITSMA, A. J. *Australian Banking* (4th Ed.). (University of Queensland Press, Brisbane, 1960.) Pp. 312. Price not stated.

The third edition of this work was reviewed in *The Economic Record* of August, 1959, and most of the criticisms then expressed still apply to the new edition. The book has not been substantially revised but has had some new sections added, the chief ones of which are on the 1959 banking legislation and the new system of statutory reserve deposits, recent Australian monetary policy and the European Monetary Agreement. Part III, on the Savings Banks, continues to be far too brief, consisting of less than three pages, whilst the treatment of the new short term money market and of L.G.S. ratio policy is also strikingly inadequate. The work is primarily descriptive rather than analytical in character and thus serves better as a work of reference, particularly for bank officers and business men, than as a textbook for the student of economics.

IMMIGRATION REFORM GROUP. *Control or Colour Bar? A Proposal For Change In Australia's Immigration Policy* (Melbourne, 1960.) Pp. 52. 3/- Aust.

This pamphlet is the outcome of a study group held at Melbourne University. Starting "not committeed to any particular policy as regards Asian migration", the writers have produced a clearly argued, well-documented indictment of the present immigration policy, which because of its implied Colour Bar, they regard as immoral and offensive to non-European nations. They propose instead regulated immigration from these countries. The Australian government would enter into flexible agreements regarding the immigration of non-Europeans with the governments of the countries concerned (as it at present does with some European governments). The criteria of selection

* Acknowledgment of publications does not guarantee review.

would be occupation, prospects of assimilation, and the needs of the home countries themselves. It is shown that the difficulties associated with this scheme could be overcome.

Low, V. H. S. *Philosophy of Hire Purchase.* (The Australian Hire Purchase Conference, Sydney, 1960.) Pp. 51. Price not stated.

This paper was given at a meeting of the Melbourne branch of the E.S.A.N.Z. by the Chairman of the Victorian Division of the Australian Hire Purchase Conference. It contains some general information concerning the post-war growth and business operations of hire purchase companies. There is little of more analytical interest. The author is fearful that the benefits bestowed on the community through hire purchase may be lost through governmental control of the industry.

Rutherford, R. S. G. *Basic Mathematics.* (University Co-Operative Bookshop, Sydney, 1960.) Pp. 126. 25/- Aust.

B.—OTHER PUBLICATIONS

Benham, F. and Holley, H. A. *A Short Introduction to the Economy of Latin America.* (Oxford University Press, Melbourne, 1960.) Pp. 169. 29/9 Aust.

A very telling condensation of information and comment to do with the economy of Latin America. The first part gives an account of the resources and output of the region as a whole, and some account of trade, while Part 2 deals with recent economic trends in seven of the more important countries, representative of the different parts of the area.

Clark, J. M. *The Wage Price Problem.* (The American Bankers Association, U.S.A., 1960.) Pp. 68. Price not stated.

This monograph by Professor Clark written for the American Bankers Association is a *general* analysis of creeping inflation in the U.S. He argues that the ability of sellers to push up prices without any prior excess demand is an important part of the explanation. In Ch. III he shows why it is not surprising that, in view of the background factors conditioning price behaviour (Ch. II), the typical price pattern is one in which wages increase more than the industry's productivity and prices rise in some sort of correspondence with the excess. Possible remedies to this difficult problem are discussed in Ch. IV. This is of interest as a simple statement of the problem by an eminent economist with some suggestions worth further consideration in the Australian context.

Committee For Economic Development. *Paying for Better Public Schools.* (New York, 1960.) Pp. 90. $2.00.

Chapters 1 and 2 of this Statement contain a brief and rather sanguine account of post-war experience, probable future needs and financial prospects. The most substantial policy suggestion is the sensible and important scheme for federal grants in aid of education in low-income states to be found in Chapter 3. Suggestions for adjustment to the existing and rather similar equalizing state grants to the responsible local authorities are contained in Chapter 4. Fear of central government appears to be the reason for the limitation of the program to upwards equalization rather than general expansion.

Economist Intelligence Unit. *Oxford Regional Economic Atlas—Middle East and North Africa.* (Clarendon Press, Oxford, 1960.) Pp. 135. 62/- Aust.

This is an excellent presentation of the physical and economic geography of the world's greatest storehouse of petroleum. Agricultural production is also well displayed both in areal and statistical terms, and external economic links receive cartographic expression. The inclusion of North Africa makes the area virtually co-extensive with western Islam.

Frankel, H. and Healey, D. T. *The Agricultural Register—New Series—Changes in the Economic Pattern, 1957-9.* (Oxford University Press, London, 1960.) Pp. 147. 46/6 Aust.

This useful volume continues an earlier series. It contains information concerning the marketing and prices of U.K. produce, covering livestock, crops,

and fruit and vegetables, with an opening section on Government policy and concluding sections covering the place of agriculture in the British economy, the utilization of land, labour and capital and inputs.

GOPAL, M. H. *Towards a Realistic Tax Policy For India (1959-66) (Presidential Address, 41st Session Indian Economic Conference, (Lucknow) 1958.* (Wesley Press, Mysore, 1958.) Pp. 46. Price not stated.

The first part of this address (sections I-III) contains a rather clumsy general statement of orthodox conservative tax principles for an underdeveloped economy. The following part (section IV) contains a suggested tax program for India 1959-66 based on incorrect assumptions regarding the Third Plan as a result of which the program is far too limited in scale. The detail, mainly expanded consumption taxes, is nonetheless interesting particularly if the author's rather conservative political premises are accepted.

HERRIGEL, E. *The Method of Zen.* (Routledge & Kegan Paul, London, 1960.) Pp. 102. 10/6 Stg.

HICKS, J. R. *The Social Framework—An Introduction To Economics* (3rd Ed.). (Oxford University Press, London, 1960.) Pp. 272. 29/9 Stg.

The third edition of Professor Hick's introductory text book contains two major changes: first, the working of the British economy is illustrated by putting 1957 data into social accounting form; secondly, Chapters IV and V on population have been revised. As Hicks does not consider the British economy to have fully thrown off the aftermath of the War until 1954, he has replaced the 1949 figures of the second edition by 1957 ones in order to show the economy functioning "in a normal way". The expectation in earlier editions that the British population would start to decline sometime in the 1960's has not been realised. The author now expects a moderate rise in population to occur. Finally, the estimates of the national capital in Chapter X are based on those in "The Structure of Property Ownership in Great Britain" by Professor E. Victor Morgan.

INTERNATIONAL JOURNAL OF AGRARIAN AFFAIRS, SUPPLEMENT. *Capital Use and Formation in the Agriculture of the Netherlands.* (Oxford University Press, 1958.) Pp. 334-381. 2/10 Aust.

KRISTENSEN, THORKIL and ASSOCIATES. *The Economic World Balance.* (Meinskgaard, Copenhagen, 1960.) Pp. 377. 46 Dan. Kr.

This is an attempt to forecast the likely changes in economic balance between the regions of the world up to 1980. The world is divided into nine regions and the forecasts start from 1955, considering the causative factors of Labour, Capital, Nature and Culture in turn. An appendix gives a specific consideration of each of the regions separately.

LOCKLIN, D. P. *Economics of Transportation.* (5th Ed.). (R. D. Irwin, Inc. Homewood, Illinois, 1960.) Pp. 874. $8.00.

The first edition of this book appeared in 1935, and has become renowned for its precise and comprehensive treatment of all major aspects of Transport Economics. This edition includes some additional material on road and air transport, and the statistical material has been brought up to date. The particular merit of this book is that it is not, like so many American works on Transport Economics, only concerned with the institutional peculiarities of the U.S.A., but includes discussions of the theory of Transport rates and Transport regulation.

MATHUR, J. S. *Essays in Ghañdiañ Economics.* (Chaitanya Publishing House, 1960.) Pp. 86. Rs. 3.

MEADE, J. E. *A Neo-Classical Theory of Economic Growth.* (Allen & Unwin, London, 1961.) Pp. 146. 25/- Stg.

NORDMEYER, HON. A. H. *New Zealand Economic Survey 1960.* (The Treasury, Wellington, 1960.) Pp. 69. Price not stated.

PARKINSON, J. R. *The Economics of Shipbuilding In The United Kingdom.* (Cambridge University Press, 1960.) Pp. 227. 40/- Stg.

This text is ostensibly on the economics of British shipbuilding, and parts one and two are suitably parochial on such subjects as the affiliations of the

British industry, the interrelationships with marine engineering firms, etc. But the remainder is written on a much more general basis reflecting conditions in the industry throughout the world. In particular the analysis of demand conditions brings out the growth of foreign building and export capacity. And in considering the growth of the United Kingdom industry and its organisation such matters as technical changes in ships, innovations in shipyard methods and engineering techniques, the impact of foreign competition is analysed in detail. Many useful and detailed statistics of this industry, strategic to world trade, are provided in detail. Of particular interest is the analysis of fluctuations in world trade and the consequences to this vulnerable industry both in the U.K. and the world at large.

ROPKE, Wm. *A Humane Society—The Social Framework of the Free Market.* (Oswald Wolff, London, 1960.) Pp. 312. 31/6 Stg.

This book consists of reflections on mass society, market economy, welfare state, inflation, and (de)centrism. The market economy, its rules grounded in morality, best promotes rounded human welfare. The welfare state, Keynesianism, macroeconomics, economics without man, etc., are castigated. Ropke's judgments are valuable, but unsure since his social ethics is limited to very general ideas.

ROSS, A. M. and HARTMAN, P. T. *Changing Patterns of Industrial Conflict.* (John Wiley, New York, 1960.) Pp. 220. $6.50.

This comparative study of strike activity in fifteen countries is a landmark in its field. Australia receives considerable attention as a "special case". Two important trends emerge, firstly, the "withering away of the strike" in many countries, and secondly, the "transformation of the strike" from a sustained test of economic strength to a brief demonstration of protest.

ROSTOW, W. W. *The Process of Economic Growth.* (2nd Ed.). (Oxford University Press, Melbourne, 1960.) Pp. 372. 59/3 Aust.

The changes in this second edition of the work first published in 1953 constitute the addition of four chapters all of which have already been published as journal articles. None of the earlier chapters has been revised. The new subjects dealt with, although closely related to the original ones, are representative of Professor Rostow's more recent interests in the field of economic growth. The main themes are leading growth sectors, "the take-off" into self-sustained growth and the stages of economic growth. There is a final chapter on the interrelation of theory and economic history.

SPENELLI, A. P. *Ensayos de Política Económica Argentina.* (Facultad de Ciencias Economicas, Universidad Nacional de la Plata, 1960.) Pp. 278. Price not stated.

U.N.E.S.C.O., JAPANESE NATIONAL COMMISION FOR. *Brief Report on Effect of Modern Industry on Local Communities.* (Tokyo, 1959, 1960.) 1959, pp. 48. 1960, pp. 61. Prices not stated.

UNITED NATIONS (ECONOMIC COMMISSION FOR ASIA AND THE FAR EAST). *Mining Developments in Asia and the Far East 1957—Mineral Resources Development Series No. 11.* (Bangkok, 1959.) Pp. 50. 5/- Stg.

UNITED NATIONS (ECONOMIC COMMISSION FOR ASIA AND THE FAR EAST). *Proceedings of the Symposium on the Development of Petroleum Resources of Asia and the Far East—Mineral Resources Development Series No. 10, and Annex to the Proceedings.* (Bangkok, 1959.) Proceedings, pp. 251. 18/- Stg. Annex, pp. 73. 7/- Stg.

UNITED NATIONS (FOOD AND AGRICULTURE ORGANIZATION). *Production Year Book, 1959, Vol. 13.* (Rome, 1960.) Pp. 484. Price not stated.

UNITED NATIONS (FOOD AND AGRICULTURE ORGANIZATION). *Commodity Bulletin Series 31. 1948 Per Caput Fiber Consumption Levels.* (Rome, 1960.) Pp. 183. Price not stated.

WORSWICK, G. D. N. *The Free Trade Proposals.* (Oxford, Basil Blackwell, 1960.) Pp. 142. 49/9 Aust.

This book is divided into two parts. The first, a Symposium on the European Free Trade Area proposals, is based on a paper by Mr. J. Black, of

Merton College. A number of eminent economists among whom are Harry G. Johnson, T. Balogh, Sir Roy Harrod, R. F. Kahn, etc., comment on specific aspects of this paper. In part two Mr. Worswick summarizes the main developments in the European Economic Community and the negotiations for a European Free Trade Area till the end of 1958. The critics of the earlier paper, with the notable addition of Mr. A. C. L. Day, add their further comments.

YATES, P. L. *Food, Land and Manpower in Western Europe.* (MacMillan, London, 1960.) Pp. 294. 55/6 Aust.

The central question asked is, what contribution can the farm economy of Western Europe make to economic expansion. The author traces historical and recent trends which lead up to the point that European agriculture is overpopulated and of low productivity. The new policies proposed could provide food for Western Europe with half the labour. Related subjects such as nutrition, food consumption, farm income and trade are also covered.

ZUCKER, E. *Standard Gold and Silver.* (Kraus Reprint Corporation, New York, 1958.) Pp. 88. $2.50.

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